

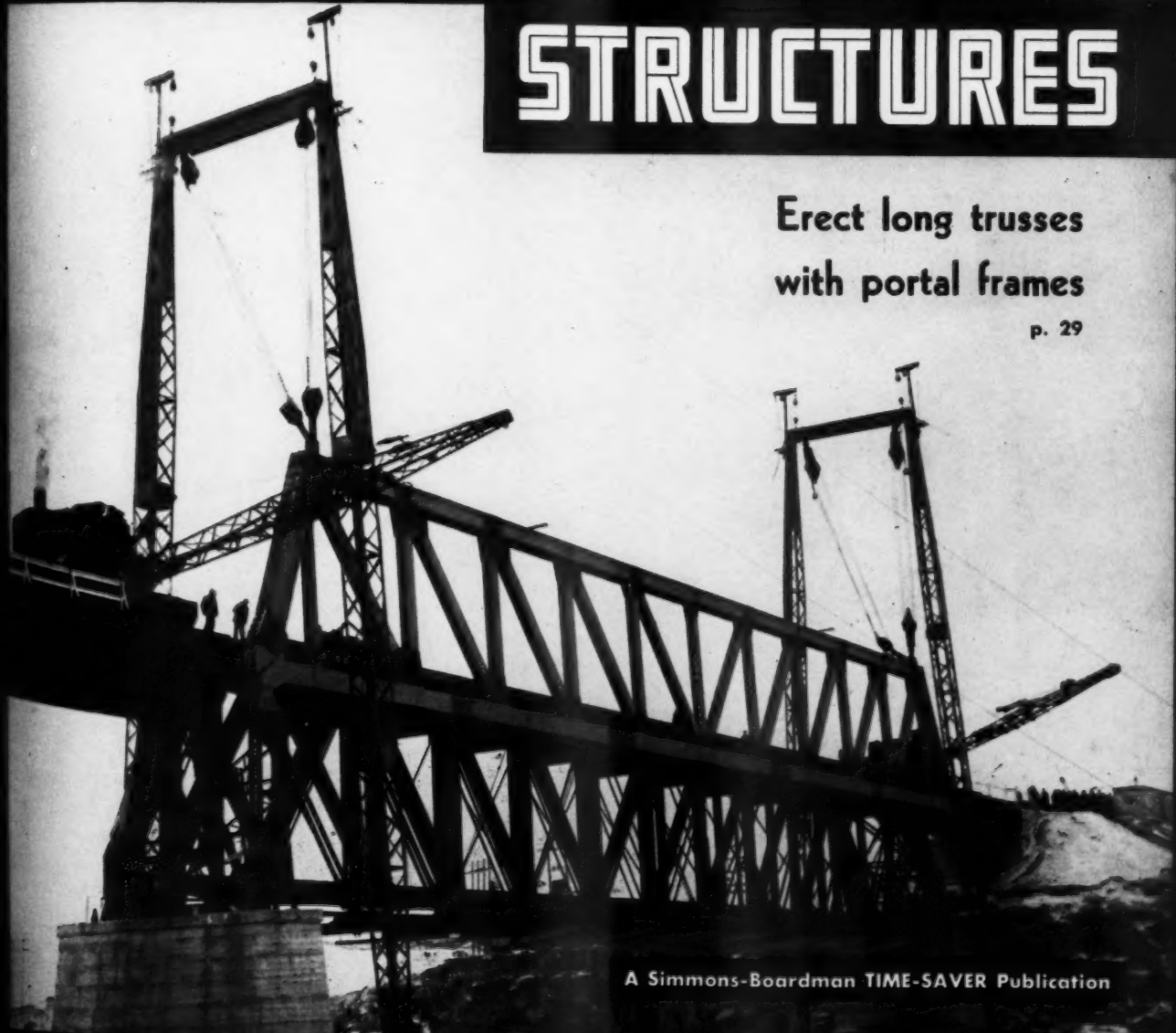
April 1960

way **TRACK** and

Begin concrete-tie service tests

p. 32

STRUCTURES



Erect long trusses
with portal frames

p. 29

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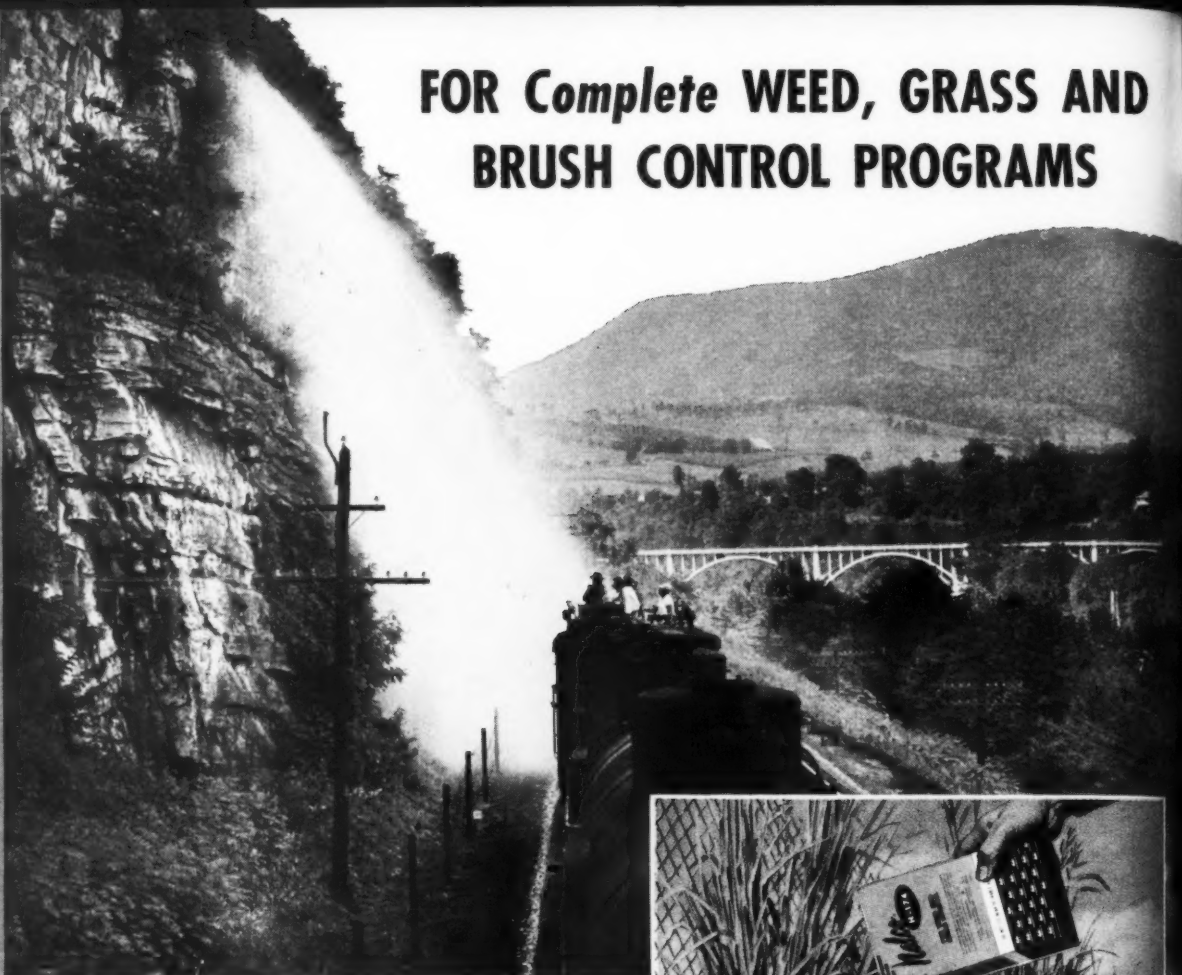
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FOR Complete WEED, GRASS AND BRUSH CONTROL PROGRAMS



... on main and branch lines

Nalco WEED CONTROL CHEMICALS and SERVICES

Nalco provides both chemicals and services for railroad weed and brush control: The largest selection of chemicals and chemical combinations, to assure the best possible solution of vegetation problems within the limits of available budgets . . . and an unmatched array of services that include accurate pretreatment surveys, versatile, modern spray cars and spreaders, experienced application supervisors, and important post-season evaluation studies.

Careful pretreatment surveys reveal important data on types of growth, soil and ballast conditions, rainfall, and growing seasons . . . enable Nalco specialists to propose a program



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We firmly believe that no one offers you so large a selection of chemicals, so complete an array of services, or so much experience as Nalco . . . and we invite you to ask a Nalco Representative how you can put all—or any part—of this program to work effectively for you.

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Special fastener does it better at half the cost



OLD BOLT

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Bethlehem fastener engineers designed this forged-eye bolt. A greatly increased strength resulted from both the new design and the use of a heavier material . . .
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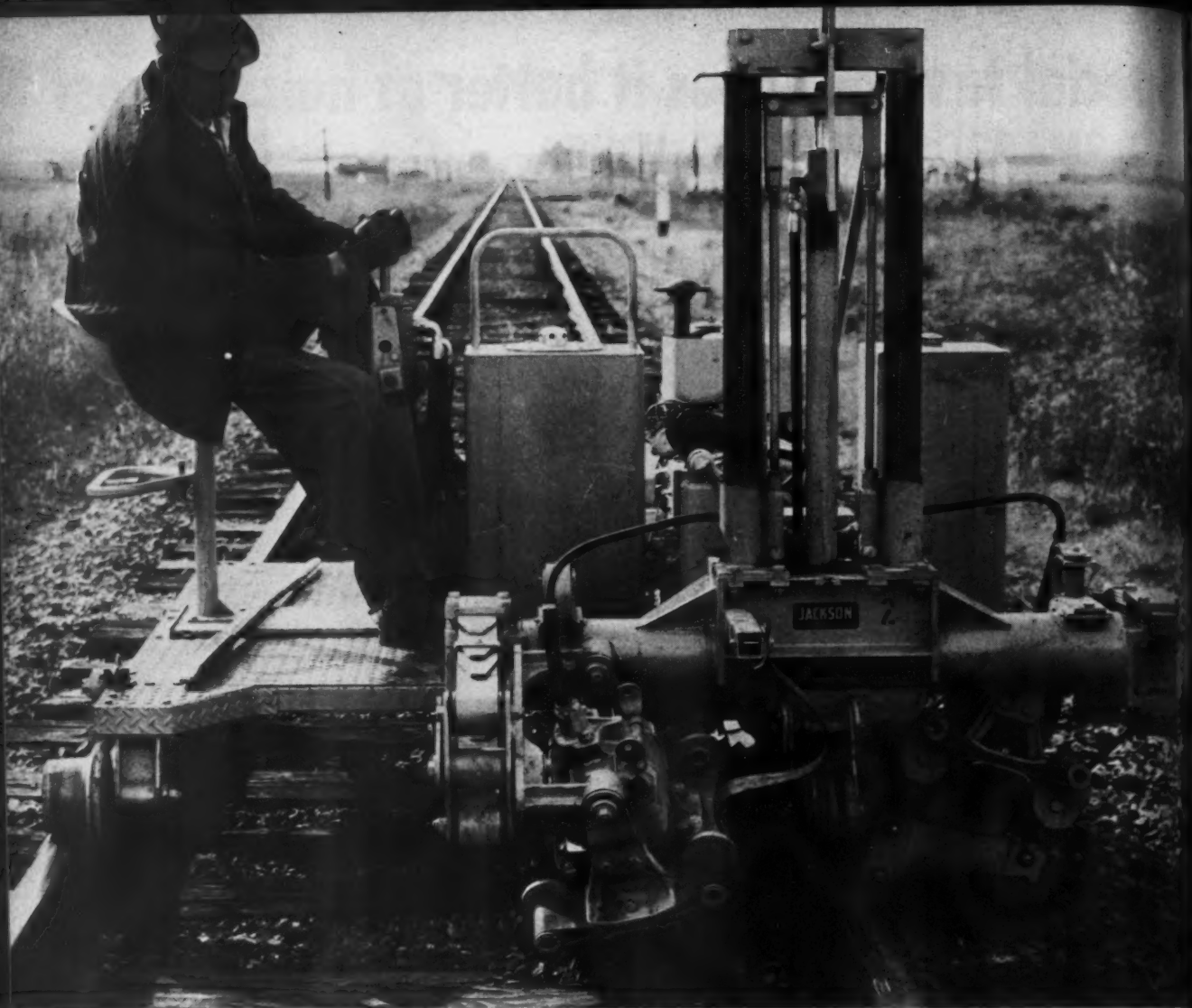
BETHLEHEM STEEL



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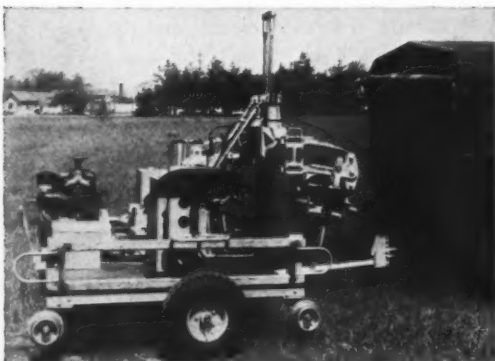
RAILWAY TRACK and STRUCTURES

APRIL, 1960 3



JACKSON MONORAIL

A COMPLETE TAMPING MACHINE IDEAL FOR SPOTTING and SMOOTHING, SECONDARY PROGRAMS and ALL YARD TRACK MAINTENANCE . . .



THE MONORAIL ON AUTO-TRAILER

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Get the complete facts. You'll find this machine is ideal for spotting and smoothing . . . tops for all yard track maintenance; and since it is a complete tamper, excellent for those secondary programs which do not justify the investment or use of our dual-rail tamping machines. Write, wire or phone for information.

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RAILWAY TRACK and STRUCTURES

AREA meeting had many special features 23

Three pages of photographs tell some of the reasons for the success of the association's 59th annual convention at Chicago last month.

Training of work equipment operators and mechanics 26

What a panel said on this timely subject at the AREA meeting. Panel consisted of both supply and railroad representatives.

New bridge was built around old one 29

Describes the method used by the UP to reconstruct a long single-track deck-truss span with minimum interference with trains.

Concrete-tie test sections are installed 32

Tells about test installations of prestressed concrete ties on the ACL and SAL, the first in the United States.

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◀ Don't miss . . .

The AREA Track committee proposed five turnouts as recommended practice. Which were chosen and why? Answers to these and other questions about standardizing turnouts were given by a panel at the AREA convention.

. . . in the May issue

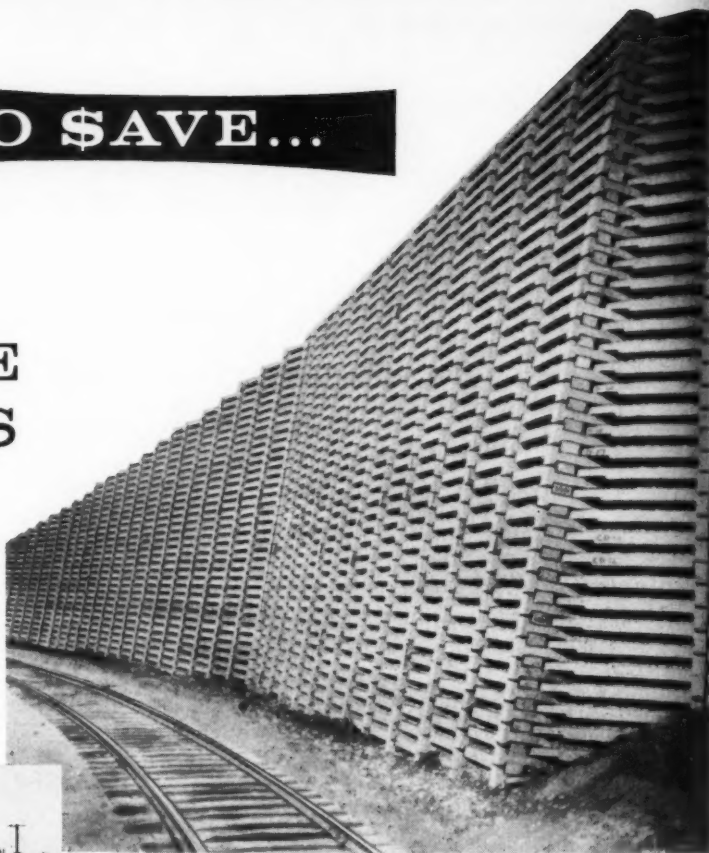
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Five years ago, Matisa introduced the first production-line rail welding equipment to America for tests with American rail and under the tremendous battering of American schedules and heavier axle loads. The results are embodied in this report on . . .

Welded Rail:

~~Five*~~
A ~~Four~~ Year
Progress Report

* THIS AD WAS WRITTEN
A YEAR AGO; THE BOX AT
THE LOWER RIGHT WAS
ADDED SIX MONTHS AGO . . .

NOW — NEW
BIRMINGHAM
FIXED LOCATION
PLANT TO BE IN
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MATISA RAILWELD, INC.
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It took Matisa a year of testing and re-building the equipment brought over from Europe to finally produce safe welds quickly and inexpensively; but in the following years, improved techniques and redesigning of the original equipment definitely indicated a need for basic changes in the original design, to be incorporated by the manufacturer. Matisa requested these improvements, but for reasons which they could well understand, the manufacturer of the old original flash butt welder decided not to alter the entire design for a small segment of its market.

Improvements Built into New Machine

Matisa then submitted designs to other manufacturers and made arrangements to produce flash butt rail welding with equipment incorporating all the improvements developed in 4 years of actual on-track welding.

This is the equipment with which Matisa will be establishing new horizons during the year—but already, with re-built equipment, Matisa has at the present time 140,000 welds in track, with a history of no weld failures.

Now known as *Matisa Flash Thoroweld*, the process is comprised of refined techniques and a re-engineered plant which are today efficient beyond that of any equipment available.

Today's Performance

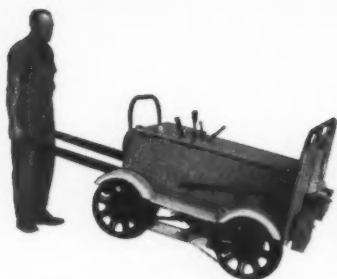
For example, recent improvements have tripled the life of grinding wheels; truly efficient adaption for the use of commercial power is now available; elimination of mechanical shearing devices has not only made a safe weld safer, but has stepped up production by 25%, and required personnel has been reduced. **The present operation produces almost twice as many welds per man hour as any other known method or equipment.**

Three years ago, Matisa had perfected production-line techniques to the point of producing 80 welds per 8-hour shift; today, Matisa has produced 186 welds per shift—and has produced 356 welds in 20 hours. These are peak performances, but the equipment *consistently averages* well over 100 welds per shift.

New Developments Here Now

The Matisa program continues. Matisa recently opened its' first Fixed Location Welding Plant at Summit, Ill.—smaller roads with not enough welds to warrant leasing equipment will benefit along with larger roads who can avoid tying up scarce operating capital.

Watch for opening of other fixed location welding plants.



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Up steep grades . . . against a stiff head wind . . . with a one-to-four-man load . . . the Fairmont M19 Series AA Inspection Motor Car gets your crews there—with time and power to spare!

The secret of the Fairmont M19's dependability is in its balanced combination of power, strength, and weight. Husky power comes from the 10- to 14-hp 2-cylinder engine. For vibration-free performance in forward or reverse, both cylinders of this smooth-running engine fire at the same time. An efficient ratio of strength and weight is achieved by a frame of heat-treated aluminum alloy, plus engine parts—cylinders, crankcase, pistons, and rods—of aluminum.

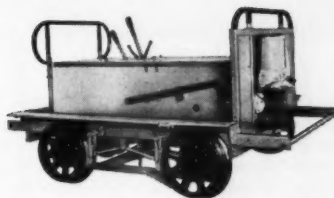
Equip the Fairmont M19 with an aluminum windshield, windshield wiper, rail sweeps (see picture) and side seats, and you've got the smoothest, most dependable inspection car you can buy. Or where operating conditions are not severe (in territories with easy grades, mild head winds), the Fairmont M19 can be equipped with an optional one-cylinder ball or roller bearing engine in place of the standard 2-cylinder model.

For all the facts on the many exclusive features of the Fairmont M19 Series AA Inspection Motor Car, or any of the complete line of Fairmont Motor Cars pictured at right, write us today.

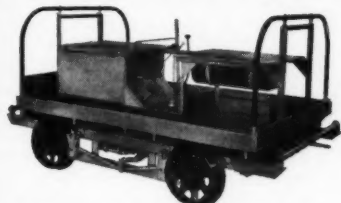




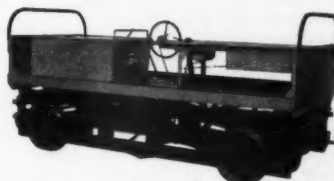
M14 SERIES H LIGHT SECTION CAR is ideal for small gangs of 2 to 6 men where ease of handling is important.



S2 SERIES AA STANDARD SECTION CAR seats 8 men; load capacity — 1800 lbs.; smooth-operating 2-cylinder engine.



A5 SERIES C MEDIUM-DUTY GANG CAR can pull loaded trailers; 4-cylinder engine, 4-speed transmission, full reverse.



A8 SERIES B HEAVY-DUTY GANG CAR. Powerful 162 hp, V-8 engine; 4 speeds either direction; 4-wheel drive.

FAIRMONT RAILWAY MOTORS, INCORPORATED • FAIRMONT, MINNESOTA



BURLINGTON—D. E. Henry, roadmaster at Hannibal, Mo., has been transferred to Burlington, Iowa, succeeding **Kenneth Z. McGill** who has been promoted to assistant engineer of track at Galesburg, Ill. Mr. McGill succeeds **B. E. Cors** who has been transferred to another district, also at Galesburg. Mr. Cors succeeds **J. R. Kanan** whose death was announced in the January issue.

CANADIAN NATIONAL—Thomas E. Dolphin has been appointed division engineer at Prince Albert, Sask., succeeding **A. N. Lang**, resigned. **R. A. Johnston**, assistant engineer at Winnipeg, Man., retired recently after 40 years of service.

DENVER & RIO GRANDE WESTERN—The following appointments to track supervisor have been made recently at the locations shown: **James L. Ozmant** at Grand Junction, Colo.; **Arthur F. Baker** at Dotsero, Colo.; **John C. Baughman** at Delta, Colo.; **Adolph H. Nance** at Glenwood Springs, Colo., and **A. T. Cordone** at Denver, Colo.

A. O. Baker, roadmaster at Salida, Colo., has been transferred to Pueblo, Colo., succeeding **J. B. Ball** who has been transferred to Minturn, Colo.

ELGIN, JOLIET & EASTERN—**Robert J. Massey** has been appointed to the new position of assistant supervisor of track at the Gary (Ind.) Mill yard.

FRISCO—**R. N. Schmidt**, assistant division engineer at Chaffee, Mo., has been promoted to division engineer at Enid, Okla., succeeding **C. A. Peebles** who has been transferred to Chaffee. Mr. Peebles succeeds **W. A. Schubert** who has retired after more than 38 years of service.

E. F. Paschal, assistant engineer at Springfield, Mo., has been promoted to general foreman, bridges and buildings and water service, at Enid, succeeding **I. Planchon** who has been transferred to Tulsa, Okla. Mr. Planchon succeeds **G. C. Payne** who has been promoted to assistant division engineer at Amory, Miss.

MISSOURI PACIFIC—**J. H. Greason**, division engineer at Wichita, Kan., has been promoted to district engineer at Palestine, Tex., succeeding **Wendell Fields** who retired on February 29.

NEW YORK CENTRAL—**William H. McLaughlin**, assistant supervisor bridges and buildings at Springfield, Ohio, has been promoted to timber treatment engineer at Indianapolis, Ind. **J. V. Bosso** has been appointed administrative assistant to district engineer at Cleveland, Ohio, succeeding **R. F. Melick**, retired. **R. A. Cameron** has been appointed supervisor of material distribution at Cleveland.

NORFOLK & WESTERN—**John H. Norwood**, resident engineer at Roanoke, Va., has been appointed chief draftsman there, succeeding **Winthrop B. Small** who has been promoted to office engineer, also at Roanoke. Mr. Small succeeds **Orvin M. Miles** who has retired after 47 years of service.

Earl W. Wilkinson, assistant section fore-

man at Petersburg, Va., has been promoted to assistant roadmaster at Norfolk, Va., succeeding **W. H. Yost, Jr.**, whose promotion to roadmaster was announced in the March issue. **Chester P. Osborne**, land appraiser in the engineering department, retired recently after 46 years of service.

PENNSYLVANIA—**E. P. Siravo** has been appointed assistant supervisor track at Enola, Pa.

SEABOARD—**H. E. Richardson**, principal assistant division engineer at Americus, Ga., has been promoted to division engineer at Jacksonville, Fla., succeeding **J. L. McBride** who has been transferred to the operations department. **A. N. Brauer**, assistant to division engineer at Raleigh, N.C., has been promoted to assistant division engineer there, succeeding **E. S. Laws** who has been promoted to principal assistant division engineer at Savannah, Ga. **B. R. Moore**, student engineer at Savannah, has been promoted to assistant to division engineer there.

SOUTHERN—**Robert L. Straight**, assistant supervisor at Louisville, Ky., has been promoted to track supervisor at Sheffield, Ala., succeeding **Carl R. Perkins** who has been promoted to assistant division engineer at Princeton, Ind. **Douglas R. Webb**, assistant track supervisor at Gainesville, Ga., has been promoted to track supervisor at Orangeburg, S.C., succeeding **Fred G. Keller, Jr.**, who has been transferred to Greenville, S.C. **Maynard L. Loy, Jr.**, rail supervisor at Charlotte, N.C., has been promoted to bridge and building supervisor at Valdosta, Ga., succeeding **J. Fred Watkins** who has been transferred to Sheffield. **Carlos T. Morrison**, track supervisor at Greenville has been appointed bridge and building supervisor at Louisville. **Ewel B. Packer, Jr.**, bridge and building supervisor at Princeton, has been transferred to Birmingham, Ala.

WESTERN PACIFIC—**Paul Elleson**, supervisor bridges & buildings at Elko, Nev., retired recently.



James K. Gloster
L&N



J. G. Watwood
C of G

Mr. Gloster served as track supervisor at Anniston, Ala.; assistant engineer at Birmingham, Ala., serving also in that capacity at Louisville; and assistant supervisor bridges and buildings at Louisville. He was promoted to assistant division engineer, also at Louisville, in 1946, and division engineer at Evansville, Ind., two years later, the position he held at the time of his recent promotion.

James G. Watwood, 27, who was recently promoted to division engineer on the Central of Georgia at Macon, Ga. (*RT&S*, Nov., p. 10), was born at Auburn, Ala., and graduated from Auburn University in 1953 with a Bachelor of Science degree in civil engineering. Mr. Watwood served in the Air Force from 1953 to 1955, after which he served as an instructor at Auburn. He entered the service of the Central of Georgia in 1956 as an apprentice track supervisor, being promoted to assistant superintendent structures and material the following year. In 1958 he was further promoted to superintendent structures and material, the position he held at the time of his recent promotion.

W. M. S. Dunn, 53, who was recently promoted to staff assistant to chief engineer, system, of the Chesapeake & Ohio at Huntington, W. Va. (*RT&S*, Nov., p. 10), was born at Covington, Ky., and received his higher education at the Virginia Military Institute. He entered the service of the C&O in 1925 in the system engineering party, being promoted to draftsman at Richmond, Va., four years later. He was subsequently promoted to assistant engineer there in 1933; cost engineer at Logan, W. Va., in 1939; and supervisor track at St. Albans, W. Va., in 1943. Mr. Dunn joined the Nickel Plate in 1945 as general inspector of track at Cleveland, Ohio, being promoted to general roadmaster, system, at Bellevue, Ohio, two years later. He returned to the C&O in 1955 as staff engineer, system, at Huntington, the position he held at the time of his recent promotion.

James R. Harris, 46, who was recently promoted to assistant chief engineer of the Gulf, Mobile & Ohio at Mobile, Ala. (*RT&S*, Nov., p. 10), was born at Holly

(Continued on page 58)

Obituary

R. Baker, assistant bridge and building supervisor on the Monon at Lafayette, Ind., died on February 20 at the age of 52.

Biographical Briefs

James K. Gloster, 49, who was recently promoted to engineer-maintenance of way of the Louisville & Nashville at Louisville, Ky. (*RT&S*, Jan., p. 10), was born at Middlesboro, Ky., and graduated from the University of Kentucky in 1934 with a Bachelor of Science degree in mining engineering. He entered the service of the L&N in 1936 as an instrumentman at Middlesboro, being appointed draftsman at Louisville four years later. Subsequently

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UREABOR stops weeds

A low rate of application effectively destroys weeds and grasses... prevents regrowth. Easy to apply...nothing to mix...no water to haul.

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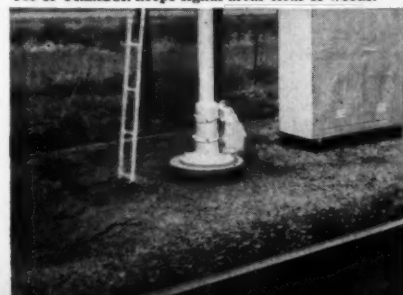
Use UREABOR to maintain weed-free yards for safety.



UREABOR protects trestles from fire-hazardous weeds.



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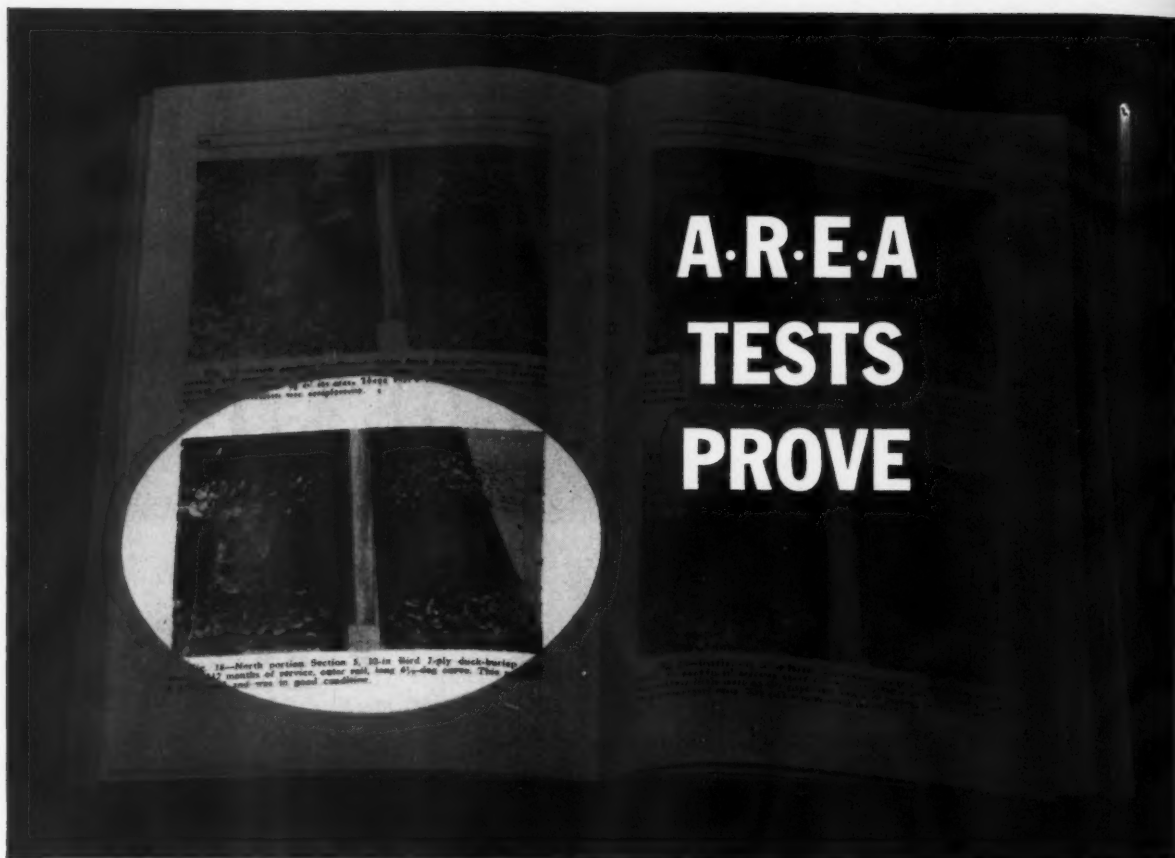
You can maintain weed-free areas anywhere at low cost, with the least amount of labor, by choosing UREABOR weed killer for the job... *that's a proven fact!* But you get other benefits too! Service, for instance. Only capable, experienced field personnel promote the sales of UREABOR. They can stretch your budget dollar for weeds because each man is thoroughly trained to solve every specific weed problem. You get sound advice, backed up by years of field experience, on how to make the most efficient use of our herbicide material. You also have a choice of hand-operated or power-driven mechanical spreaders. Equipment specifically designed to apply UREABOR to best advantage and to fit into every field use.

As you may know, U. S. Borax & Chemical Corp. pioneered the field of dry herbicides... with particular emphasis on railroad requirements. Continuing research over the years has yielded our successful scientifically formulated herbicides. Each gives outstanding results on vegetation... each makes use of the proved plant-destroying action of borates. So, for *your* weed problems, get the right answers. Get in touch with us today to get the *most* for your weed-killer dollar!

UNITED STATES BORAX & CHEMICAL CORPORATION



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BIRD SELF-SEALING TIE PAD

prevented any plate cutting for **117 months**

"Bird 7-Ply Duck Burlap Pad, Coated. 117 months of service, outer rail, long 4½ degree curve. This pad had a good seal and was in good condition."

This unbiased report of the AREA, based on tests conducted on the Louisville and Nashville Railroad near London, Kentucky is further evidence of the effectiveness of Bird Self-Sealing Tie Pads in reducing tie costs.

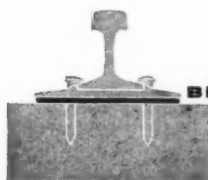
The underplate wood of this tie is as sound today as it was when the Bird Self-Sealing Tie Pads were installed 117 months ago — moisture and abrasive materials have not penetrated the effective and durable seal of the pad with the tie.

The tie pads themselves are structurally sound and good for many more years of effective service.

Don't take our word for it. See it for yourself on page 820 of the AREA Proceedings, Vol. 60, in a report beginning on Page 800.



East Walpole, Mass.



BIRD TIE PADS

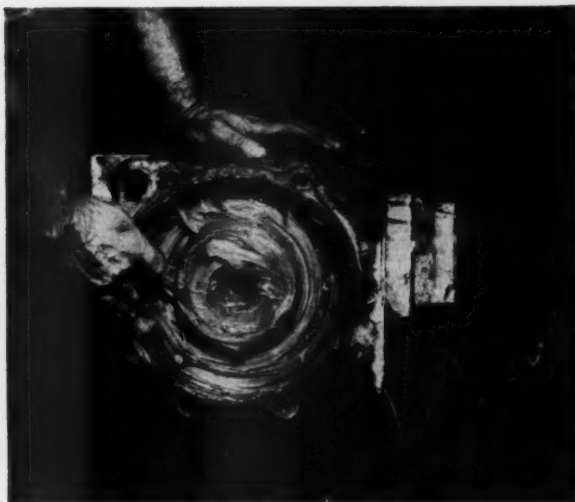
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experience
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save up to
\$1000.00
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In Industry after Industry... "ESSO RESEARCH works wonders with oil"

Athey 188



harvests old ballast!

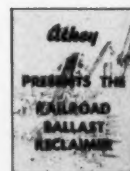
Here's the way to save money on ballast. The Athey 188 Ballast Reclaimer lifts it from your old roadbeds, cleans it and loads it—all in one quick operation.

Typical costs? About 15¢ per ton—reclaimed—instead of \$1.00 or more per ton for new ballast.

The big wide sweep of the loader with its full floating feeder and hydraulically controlled cutting edge skims off usable ballast

in one pass. The powerful shaker screen cleans it to like-new condition and the trailing conveyor spots it quickly into waiting cars—at the rate of up to 140 tons per hour. In one operation ballast harvested from old beds is ready for transport.

Put the 188 to work on your road! And put your reusable ballast to work too. With the 188 you can do it quickly and for a fraction of the cost of new ballast.

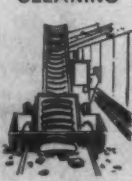


Write today for informative 8 page booklet describing the Athey 188 Ballast Reclaimer

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TRACK CLEANING



STOCKPILE LOADING



SNOW LOADING



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A quick-change artist, the 188 converts to a Track Cleaner, a top production Stockpile Loader and a Snow Loader. By making simple changes in the machine you keep the 188 working full time all the time cutting costs on a variety of loading jobs.

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**188
BALLAST
RECLAIMER**

... a résumé of current events throughout the railroad world

Net income for January of Class I railroads is estimated at \$30 million—up \$9 million over a year ago—according to the AAR. However, 30 Class I roads failed to earn their fixed charges. The rate of return for the 12 months ended with January averaged 2.75 per cent.

A plan to merge the Minneapolis, St. Paul & Sault Ste. Marie, the Wisconsin Central and the Duluth, South Shore & Atlantic was approved by the directors of the three companies on March 15. Unification of the three roads, to be known as the Soo Line, is expected "to generate desirable savings, enhance financial and competitive strength and permit improved administrative and operating efficiencies."

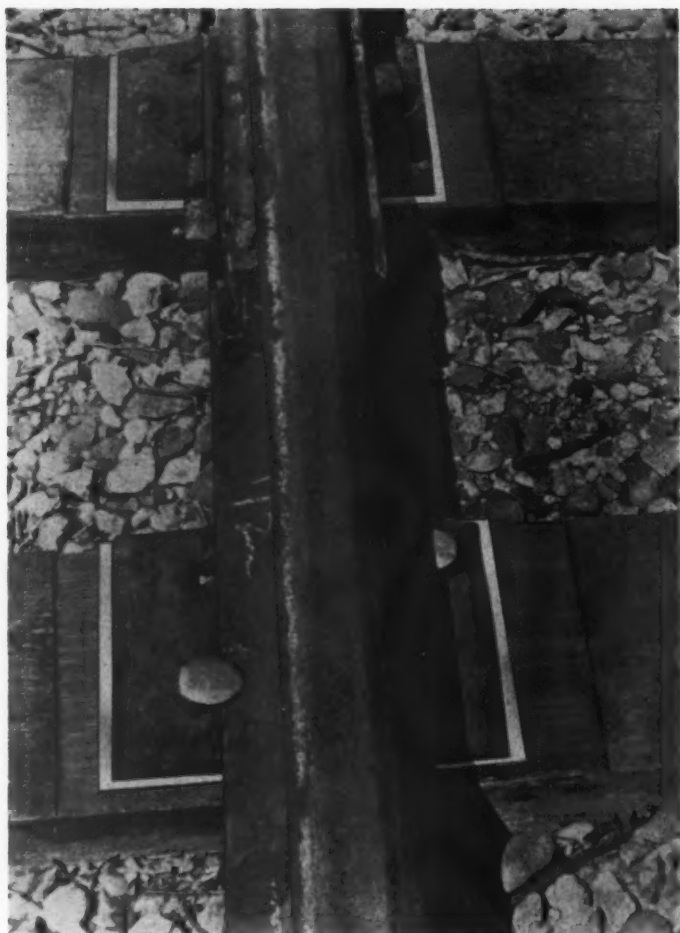
Railroad employment dropped to 785,286 in mid-February—0.07 per cent below the preceding month and 3.34 per cent below February 1959, according to the ICC's Bureau of Transport Economics and Statistics.

Eleven railroad employees were killed on duty and 1,140 injured in January 1960, compared with 21 deaths and 1,233 injured in January 1959. Five passengers were killed and 176 injured in train-service accidents in January 1960, compared with two killed and 152 injured in January 1959.

Railroad labor's "alleged cure for the featherbedding" inherent in the track-car bill would be "utterly ineffective for that purpose," said the AAR. The bill, S.1425, would give the ICC power to prescribe rules for the operation of track motor cars. The Railway Labor Executives' Association had proposed that the bill be amended to stipulate that nothing in it shall be construed as "having the effect or requiring any minimum crew or prescribing crew consists on or otherwise regulating the personnel operating or carried upon such vehicle." However, AAR's President D. P. Loomis said the "most flagrant featherbedding that would follow would arise from the National Railroad Adjustment Board's construction of other documents—labor agreements and prior awards."

Bills now before the House Committee on Interstate and Foreign Commerce for repealing or emasculating the 1958 Transportation Act's service-abandonment provisions, are opposed by the Eisenhower Administration. "None of the bills under consideration provide a better solution to the chronic railroad passenger deficit than the existing law," John J. Allen, Jr., undersecretary of commerce for transportation, told the committee.

The transportation study made by the Department of Commerce calls for more carrier rate-making freedom, user charges on publicly provided transport facilities, promotion (with coercive power available) of through-rate and joint-rate arrangements among carriers of different types, and establishment of a federal agency to plan and schedule government expenditures for transport facilities.



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with PROTEK-TIE SEALS*
at amazingly low cost of 18¢ per seal**

For a mere fraction of the cost of other tie preservers, Protek-Tie Seals give you a complete and permanent seal of underplate wood—positively keeping out moisture, abrasives and rust.

After five years' exposure to heavy traffic, examination shows spikes, plates and rails securely anchored—absolutely free of play with no evidence of cutting—conclusive proof of the ability of Protek-Tie Seals to keep underplate wood sound. Tests further indicate a service life expectancy up to 50% longer with Protek-Tie Seals.

The low cost of Protek-Tie Seals, plus the ease and speed of installation, make them a most practical investment for any and all trackage.

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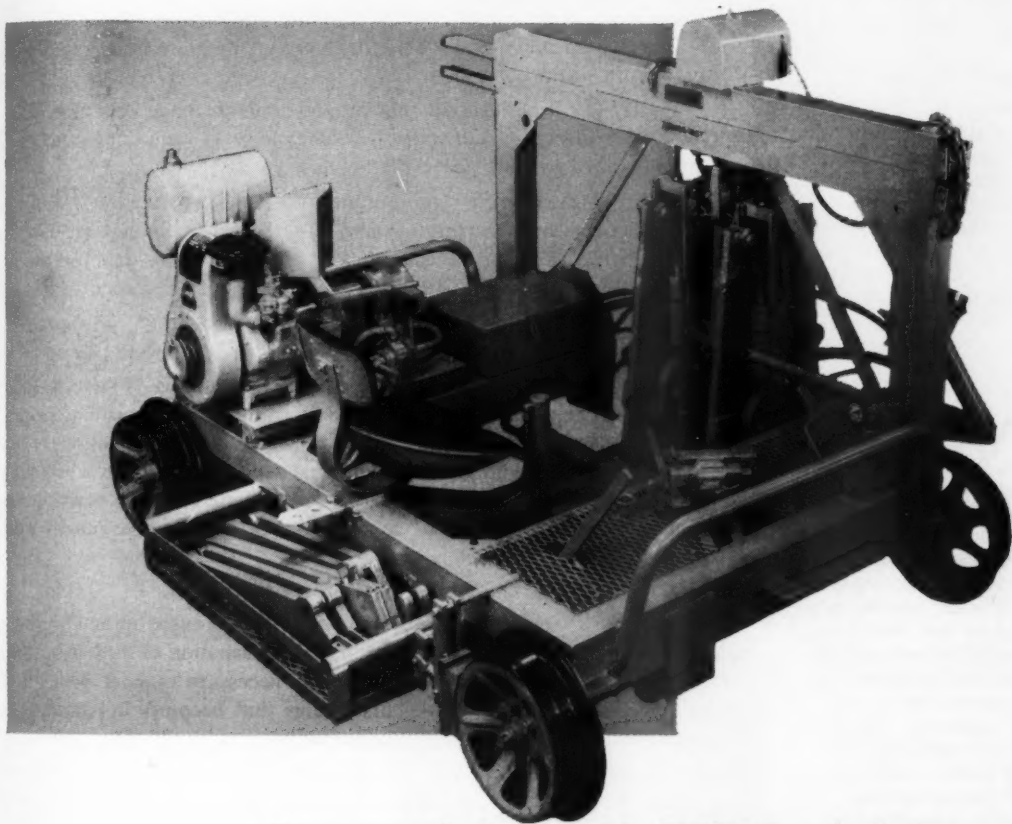
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*Patent Applied for

RACINE

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ANCHOR APPLICATOR**



For applying ALL TYPES of drive-on or tool applied hang-on anchors

The only machine, of its kind, in the field. The "Anchor-Fast" is hydraulically controlled and self-propelled. Maximum speed 15 mph. Unit is powered by a hydraulic jack cylinder for "off track" movement or can be revolved 180° for work on opposite rail.

CONSTRUCTION AND OPERATION FEATURES

- Smooth hydraulic pressure with adjustable stops, prevents over driving.
- Positive anchor-to-tie application.
- Machine can be used for either single or box anchoring.
- Powered by a 9.2 hp gas engine with clutch and reduction gear.
- Size of unit—95" x 75" x 56". Wgt. 2300 lbs.



RACINE HYDRAULICS & MACHINERY, INC.
Machinery Division

Racine, Wisconsin

Why faster progress in M/W field today?

"Follow-through" needed

A panel discussion (see page 26) by five manufacturers' representatives and five railroad men during the AREA annual convention brought out several ways for railroads to obtain better mechanics and equipment operators. These ideas point the way for securing greater production from work equipment—a matter of prime importance in this period of maintenance by machine.

It would be a pity if every railroad did not put into practice most of these ideas. Being advanced by experienced men, they are workable and for the most part are already in effect on some railroads.

Some of these ideas include: The sending of mechanics and operators to schools conducted by manufacturers at their factories; assembling groups of mechanics and operators at some point on the railroad where they can be instructed by manufacturers' representatives; having the mechanics and operators obtain shop experience by overhauling machines in the off-season; and instigating operator-trainee programs.

One of the newer ideas advanced was to create the supervisory position of "operator-instructor." Such a man would be a skilled operator having a thorough knowledge of the machines in use, and would be charged with the responsibility of properly training all of the other operators.

Another sound idea expressed by this panel is to have the operator of a machine go with it to the next job and stay long enough to impart his knowledge of its care and maintenance to the new operator.

It is to be hoped that maintenance officers will follow through on at least some of these ideas. They are too good to be wasted.

Changes in the maintenance-of-way field are taking place more rapidly than at any time in history.

In any industry it is expected that progress will be made over a period of time. We have always had progress in maintenance of way, but in the past it was more inclined to be of the creeping variety.

Now "galloping" is a more appropriate term. New developments, particularly in machinery, are occurring so rapidly that sometimes a new machine has been barely introduced and accepted before a better one has entered the picture. A new term, "dynamic obsolescence," has even been coined to describe this situation.

Evidence of the fast pace of developments today is all around us.

A year ago, for example, how many maintenance men would have predicted they would soon be able to have their rail welded into continuous lengths practically as it comes from the control-cooling boxes? How many would have been able to foretell the dramatic developments that are taking place in work equipment, including automatic operation? How many foresaw that a year later experimental sections of prestressed concrete ties of considerable length would be carrying main-line traffic?

Why the higher rate of technological progress today?

The answer, basically, is the need for efficiency brought about by higher wage rates. But this is only the reason; for an explanation of how it has been translated into a higher rate of progress it is necessary to look beneath the surface. When we do, one of the first things that becomes apparent is the almost feverish activity of manufacturers today.

Here, indeed, is an example of private enterprise at work! In the hope and expectation of making a profit, supply companies as a whole are probably committing larger sums to development work than ever before. It is "venture" or "risk" capital that enters the picture here, and it wouldn't be in evidence if those putting it up didn't believe the odds were in favor of making a reasonable profit.

Many of the ideas on which supply companies are spending hard cash are based on revolutionary concepts. The railroad maintenance-of-way man is traditionally of a conservative turn of mind. What has happened to make the manufacturers believe their revolutionary ideas will be accepted?

The answer is that the maintenance man has discarded his traditional mantle of conservatism. He has found this attitude is a luxury which he can no longer afford. He, too, has discovered it is necessary to become more venturesome in exploring new ways of cutting expenses. The alternative is the risk of falling hopelessly behind in the struggle to keep ahead of rising wages and other costs.

There was a time when the burden of proof was predominantly on the man promoting a new machine or device. Now there is an equal burden of proof on the maintenance man. He must be prepared to adopt new ideas or be ready to prove the methods he is now using are just as good.

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PHOTO COURTESY OF GREAT NORTHERN RAILWAY

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works side by side with your men

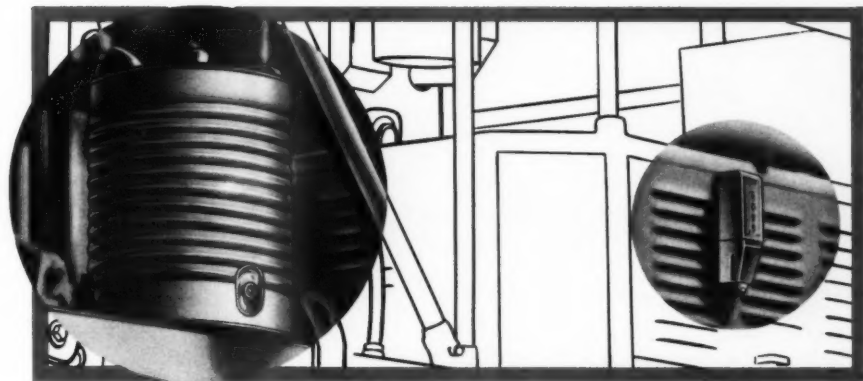
Helps maintain schedules

Saves time

Reduces absenteeism

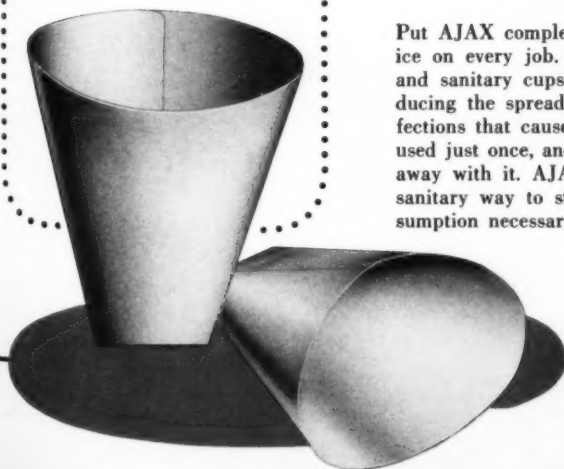
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Put AJAX complete drinking water service on every job. The heavy duty cooler and sanitary cups work effectively in reducing the spread of colds and other infections that cause absenteeism. A cup is used just once, and any germs are thrown away with it. AJAX water service is the sanitary way to stimulate the water consumption necessary for good health.

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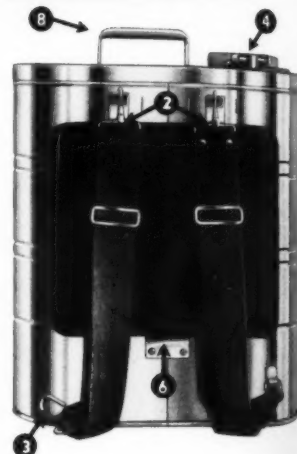
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• AJAX Stainless Steel Portable Tank

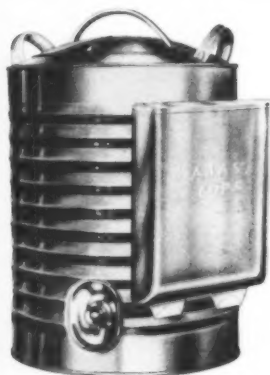


- ① Tank is made of rugged Stainless Steel firmly welded and braced. Easy to sterilize and keep clean.
- ② Strong web carrying straps with adjustable buckles and snap hooks.
- ③ Right shoulder strap hooks easily and conveniently under edge of tank.
- ④ Easily opened dust-tight cover hinged to tank.
- ⑤ Sturdy Chrome-plated Brass push-bottom faucet.
- ⑥ Form-fitting ventilated plate on back protects carrier from chill and condensation.
- ⑦ Steel AJAX Dispenser holds 300 cups. Firmly attached.
- ⑧ Large handle lets carrier hold tank like a suitcase.
- ⑨ Easily emptied receptacle for waste cups in bottom of tank.

No. 4P-15 — Weight empty 11 lbs. Capacity approximately 5 gallons Dimensions 17" high, 14½" wide, 7¾" deep



• AJAX Insulated Heavy Duty Water Cooler



AJAX Insulated Heavy Duty Water Cooler provides the finest cold water service available for use in the field. Features include:

Corrugated All-Steel construction gives greater strength and durability.

Choice of Liners — galvanized plastic coated or stainless steel.

Heavy Duty Insulation top, bottom and all sides, keeps water cooler longer.

Perfect Fitting Lid fits securely, keeps out dust, prevents contamination.

Recessed Spigot eliminates danger of breaking off, helps insure positive sanitation, drains without spillage.

Special Bottom Support holds cooler in shape, prevents center sag.

Steel Ajax Twin Stack or Streamlined Dispenser holds 300 cups. Firmly attached to tank.

Easy to sterilize and keep CLEAN.



No. 4S-355 — Weight empty 16 lbs. Dimensions Outside Height 19½" Outside Diameter 13¼"
Capacity approximately 5 gallons

• AJAX Dispensers

• AJAX Imprinted Safety Slogans



No. 414

Made of steel, finished in durable enamel. Easily installed — attached to tank by lugs or wall by screws. Simply filled — cups drop into dispenser from carton without hands touching cups. May be refilled before completely empty. Dispense 1 cup at a time.



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For 4 oz. AJAX Cup



No. 467

For 4 oz. AJAX Cup
For 6 oz. AJAX Cup

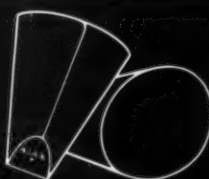
For 6 oz. AJAX Cup
For 7 oz. AJAX Cup



AJAX Cups in all sizes are available for immediate shipment with these typical Stock Safety designs, assorted, in cartons and cases. Your own special messages furnished at a slight additional charge. This is the most effective and economical system yet devised for getting safety messages read. Does not require time out for safety reminders.

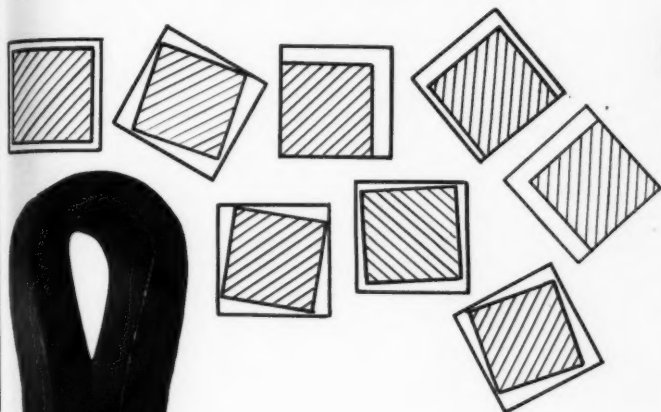
AJAX CUPS

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Troubled with loose fit of spikes in tie plate holes? . . . Plate cutting of ties . . . wave in the rail . . . Irregular gage?



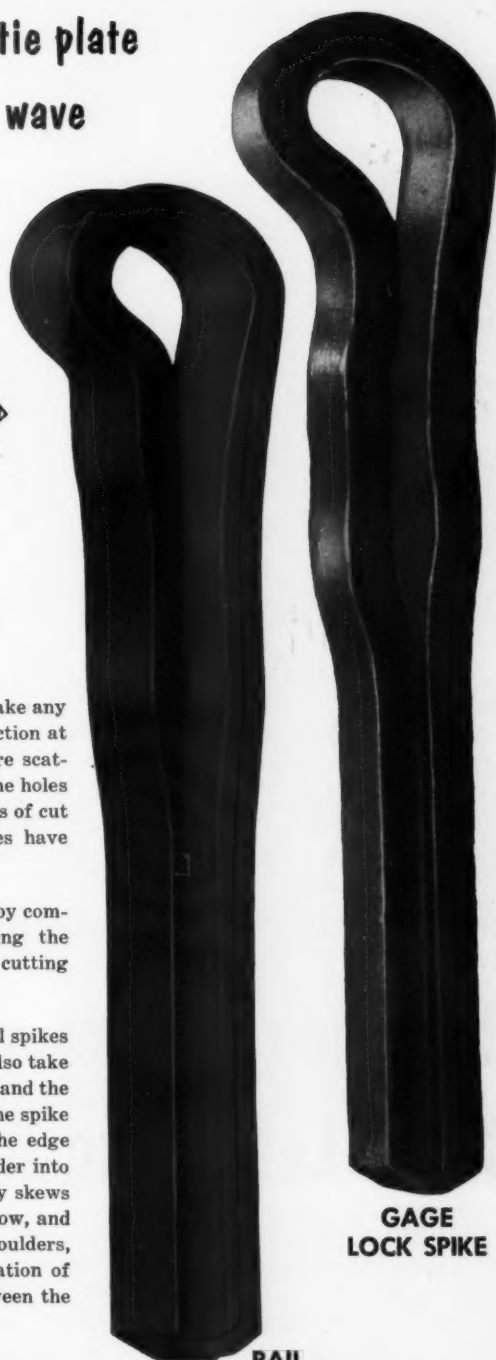
The common $\frac{5}{8}$ " square shank cut spike may take any one of the various positions shown in cross-section at the line spike holes of the tie plate, which are scattered about this page. A reduction in size of the holes will not correct this trouble, as exhaustive tests of cut spikes in the smaller $\frac{11}{16}$ " square lag holes have proved.

Only LOCK SPIKES completely fill the holes by compression of the spread shank—firmly holding the plates to the ties under spring tension. Plate cutting is overcome—Rail is held to gage and line.

Rail Lock Spikes and Gage Lock Spikes are rail spikes as well as plate fastenings. Rail Lock Spikes also take up the play between the width of the rail base and the tie plate shoulders. The slight protrusion on the spike head at the tie plate surface binds against the edge of the rail base and forces the opposite shoulder into contact with the rail base. This action slightly skews the tie plates, as shown in the illustration below, and binds the rail at all four corners of the plate shoulders, as indicated by the arrows. Complete elimination of play in the spike holes of a tie plate and between the shoulders is accomplished.



**TIE PLATE
LOCK SPIKE**



**GAGE
LOCK SPIKE**

**RAIL
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Replacing Trestle with Armco Pipe Costs Less Than Repairing It

New steels are
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Rather than make extensive repairs on an old steel beam trestle, a railroad replaced the failing structure with this 144-inch diameter Armco MULTI-PLATE® Pipe. Cost of replacement was less than the cost of repair. To assure long, maintenance-free life, the bottom of the pipe was paved. The complete installation was done by railroad personnel.

With Armco MULTI-PLATE, you eliminate painting, re-

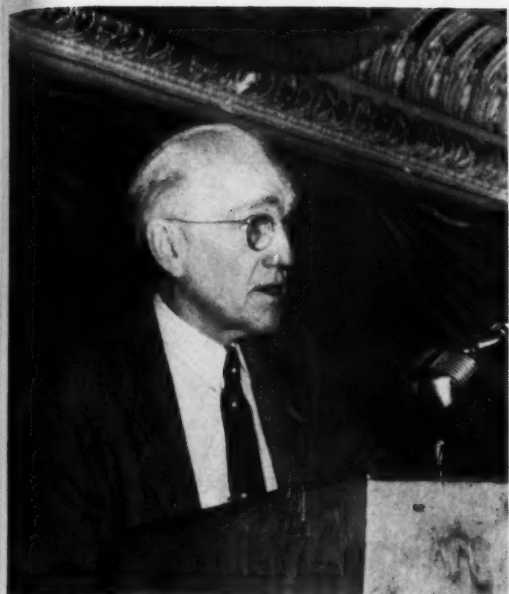
flooring, the danger of fire damage, and other costly forms of maintenance. You can remedy many kinds of drainage problems with the wide choice of MULTI-PLATE sizes and designs. Write us today for more information about these versatile, rugged corrugated metal structures. Armco Drainage & Metal Products, Inc., 5890 Curtis Street, Middletown, Ohio.

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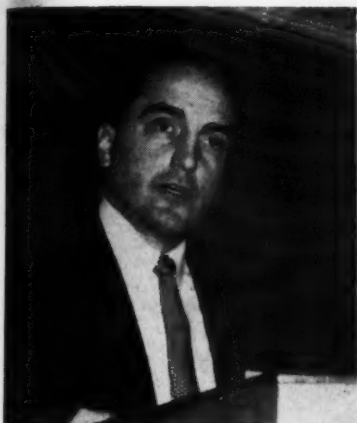


PRESIDENT Frank R. Woolford, chief engineer, WP, addresses the opening session.

AREA meeting had many special features

The American Railway Engineering Association held its annual convention at the Sherman hotel, Chicago, on March 14-16. In addition to reports of the 23 standing committees, there were 18 special features, including addresses, moving pictures, symposiums and panels. Here's the story in pictures.

Addresses covered a wide variety of timely subjects



C. D. BUFORD, vice president, Operations and Maintenance Dept., AAR, made keynote speech at opening session.



D. W. BROSNAN, vice president—operations, Sou., warned about "sacred cows" and "too much 'gay nineties' thinking."



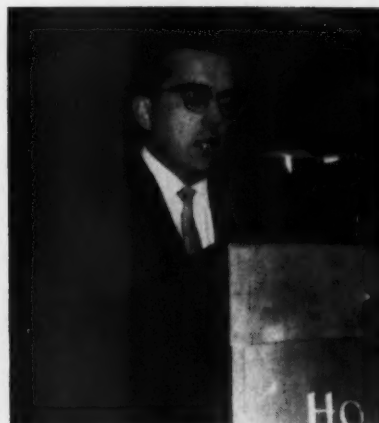
M. I. DUNN, vice president—operations, C&O, suggested possibility of designing a "track-reconditioning train."



F. B. WHITMAN, president, WP, spoke at luncheon about challenges facing railroads.



C. J. CODE, asst. chief engr.—staff, PRR, and new AREA vp, spoke on wheel loads.



L. C. COLLISTER, AT&SF, described advances in fire-retardant treatments for timber.



BALLAST TREATMENT with asphalt was discussed by G. L. Hinueber, AAR lab mgr.



CLEARANCE TESTS made on DL&W are described by R. Ferguson, AAR research electrical engineer.



Symposiums, panel discussions added interest to



GOLD EMBLEM of Association is pinned on lapel of President-Elect E. J. Brown by retiring President Woolford just before Mr. Brown took office.

Brown takes over as president

In the election of officers to serve the AREA during the ensuing year, E. J. Brown, chief engineer, Burlington Lines, was advanced from senior vice president to president. R. H. Beeder, chief engineer, system, Santa Fe, was automatically advanced from junior vice president to senior vice president. C. J. Code, assistant chief engineer—staff, Pennsylvania, was elected junior vice president.

New directors elected are C. J. Henry, chief engineer system, PRR; J. M. Trissal, vice president and chief engineer, IC; W. B. Throckmorton, chief engineer, Rock Island; and J. A. Bunjer, chief engineer, UP.

Members of the nominating committee are A. L. Sams, principal assistant engineer, IC; B. H. Crosland, chief engineer, Frisco; W. H. Huffman, assistant chief engineer—construction, C&NW; W. J. Jones, assistant engineer maintenance of way and structures, SP; and L. S. Crane, assistant chief mechanical officer, Southern System.



SYMPOSIUM on depreciation was under direction of L. W. Howard, C&WI-Belt Ry. of Op.



VIEWPOINT of engineer m/w on depreciation was presented by J. B. Byars, D&RGW.



BOARD OF DIRECTION in session on Sunday, March 13, the day before the convention opened. Left to right around the table—A. B. Hillman, treasurer (ret. ch. engr., Belt Ry. of Chicago—C&WI); T. M. von Sprecken, director (asst. to ch. engr., Sou.); T. F. Burris, director (ch. engr. sys., C&O); F. L. Etchison, director (ch. engr., WM); W. E. Cornell, director (enr. trk., NYC&SL); A. V. Johnston, director (ch. engr., CNR); E. G. Gehrke, assistant secretary; Nancy Campbell, steno.-clerk; N. D. Howard, executive secretary; R. H. Beeder, junior vice-president (ch. engr. sys., AT&SF); F. R. Woolford, president (ch. engr., WP); E. J. Brown, senior vice-president (ch. engr., Burl. Lines); B. R. Meyers, junior past president (v.p. and ch. engr., C&NW); W. W. Hay, director (prof. ry. civil engr., Univ. of Ill.); J. C. Jacobs, director (enr. m/w, IC); W. M. Jaekle, director (ch. engr., SP); W. H. Hobbs, director (ch. engr., MP); C. J. Henry, director (ch. engr., PRR); W. J. Cruse, director (enr. m/w, GN); and Ray McBrien, past president (dir. of res., D&RGW).

Subjects: Standardization, prestressed concrete



FIVE MEMBERS of a Track Committee panel presented reasons for adopting five basic turnouts as standard. Three (Nos. 20, 15 and 10) would be for main tracks and two (Nos. 8 and 6) for side tracks. (The panel discussion will be printed in May.)

to program



VALUATION ENGINEER'S ideas on depreciation are given by Morton Friedman, NYC.



EFFECT OF DEPRECIATION as seen by chief engineers is told by E. W. Smith, SL-SF.



STANDARDIZATION was the subject of a symposium that included a metallurgist (N. L. Mochel, Wes. Elec.), a purchasing agent (J. S. Fair, PRR), a trackwork manufacturer (J. P. Kleinkort, Amer. Brake Shoe, at podium), and a chief engineer (R. H. Beeder, Santa Fe).



PRESTRESSED concrete was discussed by panel for which E. J. Ruble, (AAR, at podium) was moderator. Others shown are W. R. Wilson (Santa Fe), M. S. Plumb (not on panel), Dr. C. E. Ekberg, Jr. (Iowa State Univ.), and L. P. Nicholson (Portland Cement Assn.).



SUPPLIER representatives were grouped on one side of R. K. Johnson, moderator of the panel discussion, who is shown at extreme right in this view. In background are E. J. Brown (left), senior vice president of the AREA, and F. R. Woolford, president.

Equipment

manufacturers ...

... Discuss the training of m

Concern over the lack on some roads of trained men to operate and maintain work equipment led AREA Committee 27, Maintenance of Way Work Equipment, to sponsor a discussion of the subject at the AREA convention (see previous pages). Panel consisted of five railroad representatives, all members of Committee 27, and five manufacturers' representatives.

Who was on the panel

Moderator

R. K. Johnson, superintendent of work equipment and reclamation—system, C&O.

Panelists

Morton S. Westlund, vice president, Jackson Vibrators, Inc.
P. S. Settle, vice president, Railway Maintenance Corporation.
Royce Kershaw, president, Kershaw Manufacturing Company.
C. H. Johnson, vice president, Fairmont Railway Motors, Inc.
W. B. Blix, manager, Railway Equipment Division, Nordberg Mfg. Co.
Paul Martin, methods engineer, New York Central system.
V. W. Oswalt, Sr., superintendent maintenance equip., Cen. of Ga.
J. W. Risk, superintendent work equip., Canadian National.
F. L. Etchison, chief engineer, Western Maryland.
G. R. Collier, chief engineer, Gulf, Colorado & Santa Fe.

This feature of the AREA program was introduced by R. S. Radspinner, vice chairman of the Committee on Maintenance of Way Work Equipment. Mr. Radspinner, who is supervisor of roadway machines and equipment of the C&O at Saginaw, Mich., was acting in the absence of the chairman of the committee, F. L. Horn, engineer of track of the Terminal Railroad Association of St. Louis. In his remarks Mr. Radspinner emphasized that the members of the panel were "not necessarily expressing their own personal ideas or those of the companies they represent." The manufacturers' representatives, he said, had been chosen by the suppliers' group to present the views of the participating industries, while the railroad representatives had "been chosen by this committee to present the views of the committee." Mr. Radspinner then introduced Moderator R. K. Johnson who, in turn, introduced the members of the panel.

The discussion, slightly abbreviated, then proceeded as follows:

● **Moderator:** Now Mr. Blix, I believe we will open this discussion by asking you what you think is your worst problem in your dealings with the railroads, in connection with the operation of your machines?

Blix: Our greatest problem is the machine operator. Our machines are no better than your operator. This applies to quality and quantity performance and, to a very large extent, to loss of time due to breakdown.

Our job of teaching your operators is all too frequently complicated by a constant change in personnel. A serviceman will train an operator for a certain machine and a week or so later a senior employee bumps him or is awarded the job. Frequently we are asked to train this new man. Then the machine, but not the trained operator, is transferred to a different district and another new man assigned to run it. Sometimes we are asked for additional help, but more frequently no training is given at all, not even a casual reading of our instruction manuals.

This is rough on you and on us. A green operator can do more damage to a machine in a couple of days than a trained operator will in a whole working season. He can also harm your track. Our experience has been that requests for emergency service help, as well as "rush" orders for repair parts on account of breakdown, are almost always coincidental with the assignment of new operators.

We find that the operators and mechanics pay very little attention to instruction manuals and repair-parts lists furnished by manufacturers. All too frequently we are asked, "How do

RAILROAD MEN were grouped on the other side of Moderator Johnson. In the background are a number of other members of Committee No. 27, attentively listening as President Woolford (at podium) reviews points brought out by the panel discussion.



...and railroad equipment men ...

f machine operators and mechanics

you operate your machine to do such and such?" and 99 per cent of the time the situation is covered in our operating instructions.

We also receive numerous telephone calls requesting repair parts. The persons calling do not ask for the parts by part number shown in our parts book but try to tell us what it looks like and where it fits in the machine. Sometimes we misunderstand and send the wrong part and this delays repair.

For many years the backbone of good track was a good trackman and a good foreman. Now, with mechanization, the backbone of good track at the lowest possible cost is a good operator, a good mechanic and a good foreman.

Moderator: Mr. Collier, just what is the operator situation in general on the railroads today? What has been, and what is being done along the line of training operators, and how can we improve the situation?

Collier: There is no question but that the conditions mentioned by Mr. Blix do exist upon certain railroads. The shifting of the operators in the first instance could be eliminated to a great extent if: The railroads would establish a separate machine operators' seniority roster; would advertise and assign the position to the senior operator before the new machine is received; and then have this man available for training when the machine is placed in service. In some instances, it may be well to have the serviceman train another operator at the same time he is training the assigned operator.

There is no question that some of the railroads have no set training program for operators. There are a lot of

things that bring this about and they must be given consideration, such as part-time employment, seniority, labor agreements, and rules which restrict the selection of men to be trained.

However, some railroads have an operator-trainee program and have a provision in their agreement which provides that the trainee be given a trial period. If he does not show the proper aptitude, he is not trained but is returned to the roster from which he came. If he has the aptitude, he is trained on a variety of machines, and not given operator seniority until he has completed his training.

When the machine is in the shop for seasonal repairs, the operator should go along with the machine and assist in such repairs, thus becoming more familiar with the working parts of the machine.

Moderator: We would now like Mr. Johnson, if he will please, to express some of his thoughts regarding machine operators.

C. H. Johnson: Mr. Moderator, we are particularly interested in the point Mr. Collier makes about production, as well as the matter of abuse brought out by Mr. Blix. We believe that most manufacturers' problems parallel those that Mr. Blix outlined insofar as operators are concerned.

A poor operator will not get full production. Also, this same poor operator will not only fail to get full production from his machine but he also prevents the other operators working with him from securing full production from their units. This reduces the production of the entire force.

On some railroads a laborer is assigned to a machine and taught to op-

erate it. This may be a machine that required little skill. However, this laborer immediately is placed on the operators' roster and, without further training, is placed on other machines that are more complicated and require more skill. Again the result is lower production. We are certain that the loss of productive time, as well as the cost of repairs due to neglect and abuse of a machine, must amount to quite a sum of money in a year's time.

We believe that to get the greatest benefit from new and improved machines, the railroads must have trained and qualified operators. Where one operator trains another man to operate a given machine, it works out all right if the operator doing the training is a good one. However, if he is a poor operator, he teaches the trainee all of his bad habits and you get another poor operator. Then the second man teaches a third, and you end up with additional poor operators. Therefore, we believe that extreme care should be exercised in selecting the operator and in particular an operator who is to give training to others.

Moderator: Mr. Martin, I believe you have something worth while to say on the subject of training operators.

Martin: Based upon the remarks made by these gentlemen, it appears to be the consensus that the skill of a machine operator is quite important if the railroads are to achieve the maximum return on the money invested in their work equipment.

There is considerably more to training an operator than just showing him what controls he must manipulate to make the machine move. An operator must also learn: How to get the

Training machine operators *cont'd*

maximum high-quality output from the machine; how, where, and when to lubricate it with the correct oils and greases; how to make running repairs and adjustments to keep the machine running without having to frequently call for a mechanic; how to inspect it periodically as a matter of preventive maintenance; and what must be done to protect it from damage when it is to be idle.

It is the belief of the men on one railroad I know of that the most profitable and effective medium for training operators is that of a supervisory position carrying the title of "Operator Instructor." The background of the man chosen for this position should include past experience as a skilled operator on a variety of machines, a thorough knowledge of the mechanics of the machines and the ability to impart his knowledge to others. His function is not only to thoroughly train operators but to keep an eye on them after they are trained, with the objective of increasing their skill and their worth to the company. He also is the final authority as to whether a man is qualified for inclusion on the roster.

Moderator: Mr. Etchison, what is your thinking as what could be done to improve this situation?

Etchison: Certain railroads now send work equipment supervisors and mechanics to training schools that are conducted at the plants of certain manufacturers, such as Caterpillar Tractor, General Motors Diesel and Vickers Hydraulic Company, to name a few. Some of these same personnel are sent for a day or so to schools conducted by various engine manufacturers located in the vicinity of some railroads.

Jackson Vibrators, Inc., has, for several years, held training schools at Ludington, which covers their tampers and other auxiliary equipment, to which some railroads have sent their work-equipment supervisors and other personnel.

In general, I believe, the situation could be improved if the manufacturers were to set up training schools, preferably during the winter, at their plants to instruct supervisors and mechanics in the maintenance and repair of their equipment. The railroads, I believe, would take advantage of this opportunity by having as many of their work-equipment personnel as possible attend, if given advanced scheduling so that plenty of time can be had for lining up the personnel who could be away at such times.

I also think there should be more frequent visits of the manufacturers' representatives to the railroads. At

certain locations, the railroad could assemble groups of its operators and mechanics, along with supervision, so that the manufacturer's representative could lecture upon the care and operation of their equipment and illustrate his points with movies or slides.

Moderator: Mr. Westlund, since Mr. Etchison has mentioned that your company conducts schools at your plant, perhaps you would like to comment on this subject.

Westlund: In recent years, it has been increasingly difficult for us, through the medium of our field engineers, to secure enough of the working time of railroad men concerned with the maintenance of work equipment. This situation applied equally to railroad supervisory, field and shop personnel.

It was felt that training courses held at the factory might be at least a partial solution of the problem. Accordingly, beginning in January 1958, we instituted and have since conducted several school sessions from late autumn to early spring, annually. We did this with two objectives in mind: (1) To assist railroad personnel in securing a better understanding of what is required for the proper use, operation and care of Jackson machines; and (2) to free our district field engineers of a part of this load that they might better serve all customers in their respective territories.

Thirty-nine railroads have sent 225 students to these sessions over the period ending in March 1960. If we may judge from comments of attending railroad personnel and official expressions, these schools have been of assistance to our customers.

We have benefited similarly, generally speaking. In particular, our field men have gained a more equitable distribution of their time for all users. We feel that the schools are a very effective supplement to our field training.

To further augment the training given on the job by our district field engineers, we are glad to have them participate in schools or training classes conducted by our customers. To such schools, we will also send factory personnel to assist as may be indicated.

Moderator: We would now like to have Mr. Settle tell us, if he will, what the manufacturers' worst problem is in dealing with work-equipment mechanics.

Settle: The day of having a "handy man" as a machine repairman is past. Because a man is a good machinist or a good automobile mechanic does not necessarily mean that he is good at repairing track machinery. A work-

equipment mechanic should be able to operate the machine because he is then in better position to know where to look for trouble. We feel that some of the best mechanics come from the operators' ranks.

The mechanic situation and the operator situation vary from one railroad to another. Some railroads have no mechanics at all and depend, in the main, upon the operators to make repairs in the field. Some have no method of training either operators or mechanics, and this results in minimum production, breakdowns, costly delays, and repairs. Our greatest trouble lies with mechanics who not only cannot operate the machine but have never overhauled or repaired it and do not know where to look for the trouble. Usually, where you find good mechanics who have been trained to operate the machines, you also find good operators.

Our servicemen endeavor to teach the mechanic as much as we can at the time we break in the operator. This takes several days. However, in a lot of instances, the mechanic does not stay with our servicemen long enough to become as familiar as he should with our machine. In a lot of other cases some of the men have not had sufficient experience or training to be good mechanics.

Moderator: Mr. Risk, would you care to comment upon the remarks made by Mr. Settle?

Risk: I am heartily in favor of the manufacturers' and railroad schooling. However, we must not lose sight of the fact that the best schooling that a mechanic and operator can get is on the railroad—in the shop and in the field—and it is up to the railroad to train and qualify them.

There are two types of mechanics involved—those assigned to work equipment shops and those assigned to field work. In general, it can be said that a field mechanic is better with some shop experience, and a shop mechanic is better if he has had some field experience. However, shop experience is of greater benefit to a field mechanic if he has completely repaired a machine in the shop, and is thus in a better position to maintain the machine in the field.

One railroad has agreement rules whereby a man, to become a work-equipment mechanic, is given a six-months' probation period as a trainee. If he does not show the right aptitude he then is released back to the job from where he came. If he shows the right aptitude, he then goes through a training period of four years as an assistant mechanic in both shop and field before he becomes a qualified mechanic.

(Continued on page 38)



Existing deck-truss span, 247 ft long, had to stay in service while it was being rebuilt, so . . .

. . . New bridge was built around old one

● Bridge engineers of the Union Pacific had the problem of replacing the 247-ft deck-truss portion of a long bridge while trains were still using it. The location of the bridge on a single-track main line and 110 ft above a river added to the complexity of the problem.

First, they preassembled the new trusses. Then, working from the deck of the old span, they erected them alongside the trusses being replaced. Floorbeams and bracing were then worked between the old members and connected to the new trusses.

The bridge is 962 ft long and is located at American Falls, Idaho, on

the road's main line to the Pacific Northwest. The original crossing was built in 1895 and consisted of a number of deck-truss spans. Subsequently all of the trusses were replaced with deck-plate girder spans except for one deck-truss span over the channel. The latter span was replaced in 1902 and is the one which was currently replaced. The entire bridge consists of open-deck construction, but is now in the process of being changed to a ballasted-deck type, starting with the new truss span.

In the current project, involving replacement of the main deck-truss span, the height of the bridge above

How do you reconstruct a long single-track deck-truss span extending across a gorge 110 ft deep? That is, without excessive cost or interference with traffic. UP engineers came up with the answer but even so the most careful planning and execution were required to carry it out.

the river precluded economical construction of a temporary trestle to carry trains around the bridge during reconstruction work. The same was true of conventional construction methods utilizing falsework. Closing a portion of the line and detouring

UP bridge job cont'd



2 Erection frames were installed at ends of old span. New truss was moved into position by winch on locomotive crane.

1 Trusses were assembled on two four-wheel trucks. Shoes of outriggers contacted each outer rail to give stability during move.

trains over foreign lines would also be prohibitively expensive.

Erection of the new span around and through the old span, using the latter as a base of operations, appeared to be the only practicable procedure. With this method in mind the new bridge was designed on the basis of the following conditions:

- Panels of equal number and length as existing span.
- Panel points to fall midway between panel points of old trusses.
- Top and bottom chords to be slightly higher than those of existing span.
- Spacing of trusses to be greater to allow erection alongside existing ones.

The first three were dictated by the need to assure ample room to erect the new floorbeams and bracing between the web members and bracing of the old trusses. Accomplishment of the fourth condition was made possible by a fortuitous circumstance, the top of the existing concrete piers was large enough to accommodate the new trusses on a wider spacing.

Preassembly of the new trusses, which weigh 250 tons each and are 247 ft long by 40 ft deep, was done in an area to one side of the main line near the bridge site. A 510-ft length of track having four rails was laid through the area for the purpose of moving the completed trusses to the bridge. The two inner rails, consisting of 131-lb sections, were set to standard gage and connected to the main line.

How trusses were preassembled

Each truss was assembled in a vertical position on two especially built four-wheel trucks, one at each end, which operated on the two inner rails. The bottom chord rested on a 16-ft structural-steel member fastened in a transverse position to the top of the trucks. The truss was held in place by a triangular frame whose legs were fastened together over the top of the truss. The lower ends of the legs were connected to the ends of the transverse member. The top chord was guyed and braced to help keep the truss in

position while being moved to bridge.

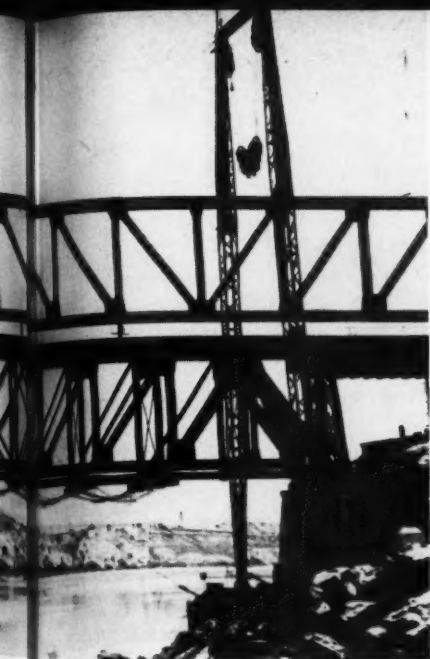
To keep the truss from tipping shoes were placed at the ends of the transverse member to bear on the two outer rails, which were 16 ft apart. These rails were continued along the main line from the assembly area to the bridge and then across the bridge, being supported on brackets attached to the girder spans and on the top chords of the old truss span.

Using this supporting structure each truss was moved into position for erection by a winch mounted on a locomotive crane.

Two erection frames built

Each truss was handled into position on the piers by two sets of lifting tackle, each hung from a portal frame located at each end of the deck-truss span. Each frame consisted of two 150-ft long structural steel legs and a head frame. The legs were set on a concrete foundation near the base of the piers. The two frames were cross guyed to each other and also guyed to concrete anchorages beyond the ends of the span.

Fastened to each head frame was a double set of lifting tackle. Each of the four load blocks at each frame was reeved with 17 parts of $\frac{7}{8}$ -in wire rope. The two lower blocks were attached to the top of the truss by eyebars. Two locomotive cranes were used to drift the new truss far enough beyond the old truss to obtain adequate clearance for lowering.



Each truss was erected on the piers in accordance with this sequence of operations:

(1) Truss was lifted vertically by both sets of load blocks until clear of trucks.

(2) Truss was shifted transversely to position outside of old span by slacking off load blocks on the other side, transferring the entire load to the second pair of blocks.

(3) Line from each locomotive crane, attached to bottom chord, was taken in to drift the truss outward to clear old truss.

(4) Truss was lowered onto pier by load blocks.

(5) Truss was secured by temporarily lashing to the old truss.

Second truss erected in 3¾ hr

The first truss was installed in slightly over five hours. The second truss was placed the following day in 3 hr 45 min. The cause of safety was enhanced by attaching nets to steel beams hung at the bottom panel points of the old trusses. After the floorbeams and bracing had been installed the new span was placed in service panel by panel and the old span dismantled.

The project was carried out under the general direction of J. A. Bunjer, chief engineer of the Union Pacific. Design work, planning and erection were done under the direct supervision of James Curran, system bridge engineer.



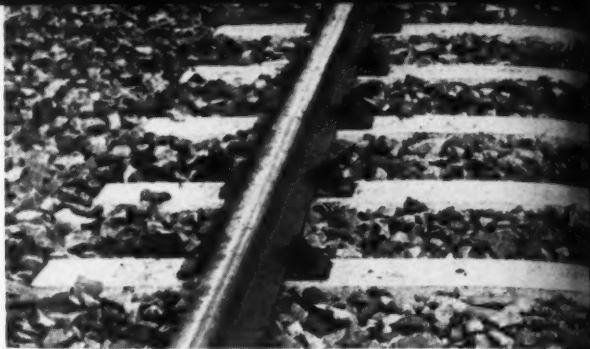
3 Lower pair of load blocks was attached to eye-bars fastened to the top chord of truss. After the bracing members were removed the truss was lifted vertically to clear the trucks.

4 Truss was moved to outside of old truss by slacking off one set of load blocks. Locomotive cranes were used to drift truss clear of old truss so that it could be safely lowered onto pier.

5 When both trusses were in place on the piers, floorbeams and bracing were installed between members of old trusses. When this work is completed the old span was dismantled.



Concrete-tie test sections go in on ACL, SAL



Trains of the Atlantic Coast Line and the Seaboard Air Line are now rolling over the first tracks in this country to be supported on prestressed concrete ties. Both test sections are laid with continuous welded rail. Ceremonies signaling their completion were held at Tampa, Fla., on March 9. The tie used, known as the MR-1, was designed by the AAR research staff.

● Railroaders and researchers can now begin to evaluate the performance of prestressed concrete ties under service conditions.

This has become possible as a result of service tests installed on the Atlantic Coast Line and the Seaboard Air Line. Completion of the test installations was signaled by a "gold-bolt" ceremony (see opposite page) that took place near Tampa, Fla., on March 9 at the scene of the Seaboard's test site.

This test, located in the road's single-track main line, consists of about 600 concrete ties placed under a quarter mile of 115-lb rail welded into continuous lengths. At each end the concrete ties extend two standard rail lengths beyond the welded rails.

The ACL's installation, placed under 132-lb continuous welded rail, is located near Four Oaks, N.C., about 50 miles south of Rocky Mount. This test section will also be a quarter mile in length but at the time of the gold-bolt ceremony only 150 of the concrete ties had been installed; the remainder were to be inserted later. The ACL installation is in the road's double-track main line.

How the ties were unloaded and installed on the SAL




TIES arrived at site on flat cars and were unloaded by Burro crane operating from another flat car. Weight of ties was about 540 lb each.



OLD TIES were pushed out of track by a Fairmont Tie Remover. Location is main line about 7 miles east of Tampa.



NORDBERG GANDY was used to pull concrete ties into the track after beds had been prepared by a Fairmont Tie Bed Scarifier.



The concrete ties installed in both test sections are of a type designed by the AAR research staff. They were manufactured and made available at the expense of the American Concrete Crosstie Corporation, Tampa. The fastenings and the labor and machinery required for installation of the ties were provided by the two railroads.

Three years of work

The design selected for the test installations is the outcome of three years of work on the part of the AAR research staff under the direction of G. M. Magee, director of engineering research. E. J. Ruble, research engineer—structures, was in direct charge of the design work.

A number of different designs were created and subjected to laboratory tests at the AAR research center in Chicago. The final design selected, originally designated as Tie "E," has been named the MR-1 tie by the American Concrete Crosstie Corporation which will offer it for sale to the railroads. The "M" is for Magee and the "R" for Ruble.

(Please turn the page)



HAND WRENCH was used in "gold-bolt" ceremony. Taking turns wielding the wrench were (left to right) G. M. Magee, AAR's director of engineering research; T. B. Hutcheson, the Seaboard's chief engineer; L. E. Bates, chief engineer of the ACL; and Douglas P. Cone, president, American Concrete Crosstie Corporation.

"Gold-bolt" ceremony heralds completion of test sections

Completion of the concrete-tie test sections was made the occasion for impressive ceremonies at and near Tampa, scene of the Seaboard's installation.

The ceremonies took place on March 9 with about 250 persons present, including representatives of railroads throughout the United States, as well as from Canada and Mexico. The day's activities got underway with a breakfast and press reception at the Hillsboro hotel. Dignitaries present included Governor Leroy

Collins of Florida and Mayor Julian Lane of Tampa. President Douglas P. Cone of the American Concrete Crosstie Corporation acted as master of ceremonies, and speakers included the AAR's G. M. Magee, the ACL's L. E. Bates and the Seaboard's T. B. Hutcheson.

Following breakfast the group was taken to the site of the Seaboard's test section for a "gold-bolt" ceremony. This entailed the application of gold-plated bolts, clips, lock washers and tie plates to one of the ties.



CONCRETE TIES were tamped immediately after insertion by Jackson Multiple Tamper. Track was later tamped out of face by Matisa tamper (next page).



BOLTS for clip assembly were run down with Race power wrench. Bolt tension used is about 8000 lb.

Concrete-tie test sections cont'd

The MR-1 is designed to be spaced 30 in apart, and this is the spacing in both the test installations. Since wood ties are normally spaced about 20 in apart, this means that two concrete ties will take the place of three wood ties. Calculations of the AAR research staff indicate that the resulting increase in rail stresses will amount only to about 10 per cent in the heavier rail sections, still well within safe limits.

The concrete tie installed in the tests is 8 ft 6 in long, 12 in wide at the base and tapers to a width of 9 in at the top. Special features of design include a wedge-shaped section on the underside at the middle to keep the tie from becoming center-bound. The wedge-shaped section is 3 ft long. Another special feature is a concave

shape for the undersides at the ends, the purpose of which is to hold the ballast under the tie.

The tie is prestressed by four 7/16-in uncoated 7-wire strands with a maximum ultimate strength of 250,000 psi. The concrete mix, containing high-early-strength Portland cement, Florida sand, granite coarse aggregate and an air-entraining agent, is designed to produce a minimum compressive strength of 6000 psi at 28 days.

Fittings for the concrete ties include tie plates 5 in wide, which are separated from the concrete by a treated plywood or polyethylene plastic pad. At each tie plate there is a specially designed, heavy-duty clip on each side of the rail, which is clamped against the top of the rail base by a 3/4-in

heat-treated bolt inserted thread down into a recessed pocket in the underside of the tie. Insulation is provided by a flanged rubber sleeve inserted through the clip and the bolt before the bolt is applied. A double-coil spring washer completes the rail-fastening assembly.

Because the bolts are inserted after the ties are placed in track it is necessary that the nuts be placed in the recesses in advance of installation of the ties. Two arrangements are used to lock the nuts against turning when the bolts are inserted. In one of these the nuts are spot-welded in a channel placed in a recess in the bottom of the tie. In the other a tapered wedge nut is used.

Different fittings used

In both the service tests different types of fittings are being tried out. Wedge nuts and channel-type headlocks for the bolts were installed at both locations. Polyethylene pads were installed under all the plates at the ACL installation, but in the SAL test various types of treated plywood pads are being tried out, along with the plastic pads.

One of the purposes of the test installations is to determine the static and dynamic bending moments at different points in the ties under trains moving at various speeds. For this purpose six of the ties installed in the SAL test had strain gauges affixed to their undersides before being inserted in track. They will also make it possible to measure the distribution of load with the 30-in spacing.

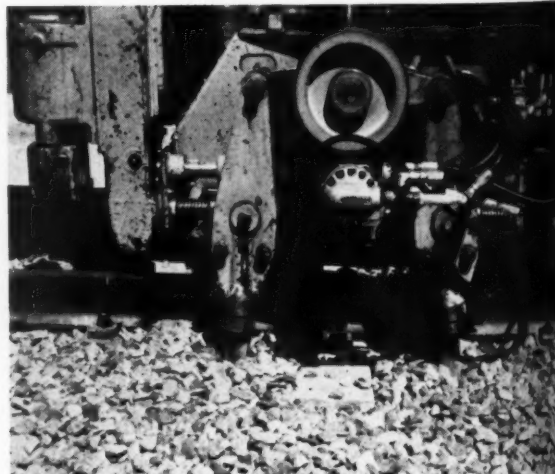
How track was raised, tamped, lined



JACKING of track in connection with 1 1/2-in raise was done with Nordberg Power Jack working with a Trak-Surfer (wire-type "sighting" device). Jackson four-tool vibratory outfit was used to catch-off tie at point of raise. A tamping power jack is normally used for this work on SAL, but was not available on this job.



CONCRETE TIES were tamped with Matisa tamper. This was a B-24 machine the road had converted to hydraulic operation.



TO ADAPT tamper for work on the concrete ties the spacing between tamping tools, normally 12 in, was increased to 14 in.

In the minds of trackmen there are naturally questions regarding whether problems are encountered in the installation of ties weighing about 540 lb. With such questions in mind an RT&S editor was on hand to observe the work on the SAL.

The long rails at this location had been laid late last year. For five standard rail lengths at each end these rails were held by compression clips at every tie. In between, the clips were used on every other tie.

The procedure was first to insert alternate concrete ties throughout the test section, removing only those wood ties that were found in the way of the concrete ties. The remainder of the concrete ties was inserted in a follow-up operation. The procedure followed when installing the ties and principal units of equipment used are shown in the photographs on pages 32 and 33.

Several days after installation of the concrete ties the test section was raised 1½ in, the ties were tamped out of face and the track was lined. The procedure and equipment used in this work are shown by the pictures on these pages. Those in charge of the work reported no serious problems were encountered.

As to the economics, it is estimated by Mr. Coné that, with the MR-1 tie costing about \$9.00 each, the ties and fastenings for a mile of welded track will cost about \$2,000 more with the concrete ties than with wood ties. This means that proponents of the concrete tie are counting on reduced maintenance costs and longer service life to make a favorable comparison with the wood tie.

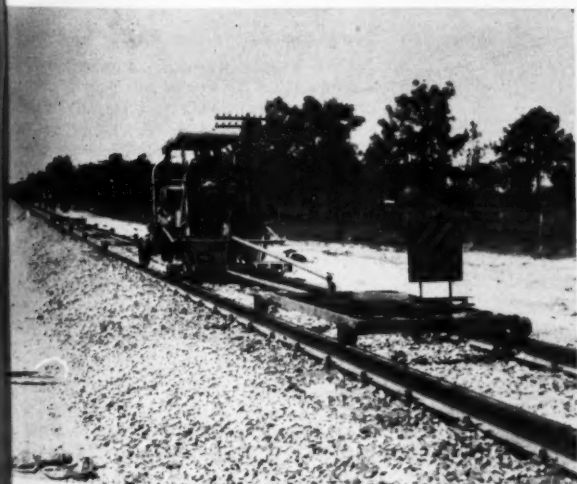
People in the concrete-tie picture . . .



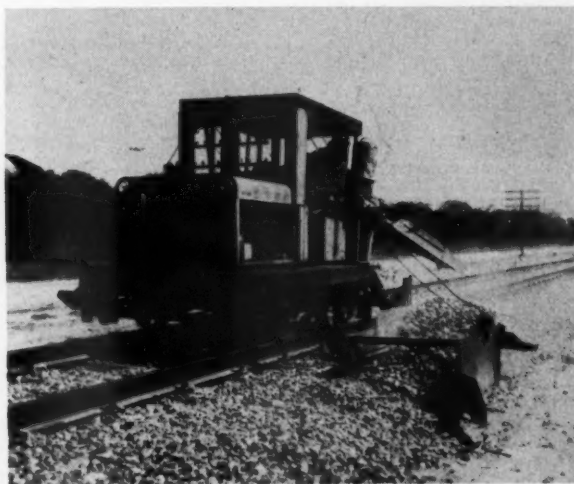
SEABOARD officers responsible for installing its test section. L. to r.—J. R. Traphoner, division engineer; L. E. Hardin, roadmaster; W. C. McCormick, general roadmaster.



AT GOLD-BOLT CEREMONY—M. F. Smucker, AAR; E. J. Ruble, AAR, who designed tie; Lee P. Nicholson, Portland Cement Assn.; John P. Roebuck, Jr., Amer. Concrete Crossele Corp.



LINEING was done with an RMC LineMaster working with a Nordberg Line Indicator. All machines are regularly used on SAL.



EQUALIZING of ballast with a Kershaw Ballast Regulator was the final operation. Ballast is predominantly Georgia granite.



Fence-erecting machine

The United States Steel Corporation has developed a tractor-drawn machine for erecting fences. It is designed to drive the posts and erect up to five strands of braced wire at the same time, woven wire or woven wire and one strand of barbed wire. The company claims that the unit enables two men to erect a fence in one pass. An announcement says the machine can maneuver up and down hills, on side slopes and through woods. The fence erection unit can straddle a straight line when both posts and fencing are being erected at the same time, or adjusted so that the tractor and equipment can operate adjacent to a line of existing posts.

News briefs in pictures . . .



New machines for PRR

Six new Bantam Rail-Roader units (above), manufactured by the Schield Bantam Company, Waverly, Iowa, were recently driven away from its plant in Waverly by operators for the Pennsylvania. The order consisted of three cranes and three carriers, each equipped with flanged wheels. An announcement states that it is the largest single "drive away" order in Schield Bantam's history.



Install wrought iron deck

The Northern Pacific recently installed a wrought iron deck (left) in its new riveted through-plate girder bridge near Ritzville, Wash. Manufactured by the A. M. Byers Company, Pittsburgh, Pa., the plates were joined together to form a water-tight, corrosion-resistant trough for supporting the ballast section.

Sign contract for welded rail

Continuous welded rail will be supplied to the Pennsylvania by Linde Company from a Ribbonrail welding plant now under construction at Harrisburg, Pa., near Bethlehem Steel Company's Steelton Mill. The contract was recently signed by J. B. Jones, vice president, purchasing and real estate, PRR (left) and W. S. Winn, manager of Linde's Oxweld Railroad Department (right). Looking on are C. J. Henry, chief engineer, PRR (left) and W. G. Gumm, manager, engineering, Oxweld (right). The Harrisburg plant will also serve other railroads in the east and southeast.



*Double slips
for terminals*



Special trackwork is a Bethlehem specialty

*Girder rail
for dock track*



Just name your special trackwork problem: Slip switches? Girder rail assemblies? Movable point crossings? High-speed crossovers? Heat-treated stock rails? Bethlehem specialists build them all.

Before we ship a single piece, we'll check out the whole assembly on our spacious layout floors. That way we'll know that when the track materials arrive

at your site, they'll fit without field-cutting, curving or drilling of rails. No waste, no headaches, just thorough satisfaction. Why not hand your project to a Bethlehem engineer? You can reach him through our nearest sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM

STEEL



Training machine operators *(Continued from page 28)*

One training method is to take a machinist who has little or no work-equipment experience and team him up with an experienced work-equipment mechanic in the shop and have the experienced man teach the new man. This is about the only way you can produce work-equipment mechanics under certain rules which now obtain on some railroads.

Moderator: Mr. Oswalt, you have had a lot of experience in the field of work equipment. Will you please favor us with some of your thoughts as to how the situation we have been talking about can be improved.

Oswalt: This discussion has, so far, centered mostly around a serviceman visiting a railroad, when a machine is placed in service, and training the operator at that time. This is all well and good but is only the beginning.

I would like to suggest that the manufacturers have their service representatives make periodic visits to the machines in the field during the regular working season. Also, that they have their servicemen visit the railroad work-equipment shops while the machines are being overhauled during the off-season. While the serviceman is teaching the work-equipment forces about the repairs to the machines involved, either in the shop or in the field, he will pick up some ideas as to how to reduce wear as well as learn about some of the weak points in the machines.

More service calls are needed. The serviceman should visit oftener and stay longer. It seems to me that, in some instances, the servicemen are spread pretty thin.

Now as to the Machine Operator's Manual and parts lists. There is no doubt that, in the past, there have been many occasions where the part number has not been given to the manufacturers and the manual not referred to. This still occurs in some cases. The manuals and parts books furnished recently are an improvement over those furnished in the past. However, there is still room for improvement. Some of the parts books and manuals furnished are still somewhat confusing to the average operator and to some of the mechanics. In addition to simple step-by-step operating instructions, they should include definite recommendations as to the greases and oils and wire rope to be used. They should also include electrical and hydraulic-circuit diagrams. An example of the type desired is Caterpillars' "Service Mens' Reference Book."

Moderator: Mr. Kershaw, you have heard the "pros and cons" on the sub-

ject at hand. From your wealth of experience, we would like you to comment on the subject generally.

Kershaw: We find that the operators and mechanics vary greatly from one railroad to another; some good and some bad. Where the railroads insist on good operators, good mechanics and well-maintained machines, they get these things. Where they do not insist upon them, they have poor mechanics, poor operators and poorly maintained machines.

The training of an operator or a mechanic is about the same thing we manufacturers encounter in trying to produce good servicemen. We probably have less stringent agreement rules, which gives us a chance to select more carefully the men whom we want to train and make into servicemen.

They all have shop experience and are thoroughly familiar with the machines they are to service. They, of course, must be expert operators. I think any railroad work-equipment mechanic should be able to operate the machines that he must maintain. You really have to know how a machine should behave when it is running properly, to know what is functioning improperly, in case of trouble, and what is probably causing this trouble.

I agree with what has been said about the servicemen learning something from his visits to the work-equipment shops and the field where the machines are being used. This field work by our servicemen, under actual operating conditions on the track, is where they get the real experience which enables us to further develop and improve our machines. Also, the beneficial things they learn on one railroad can be passed on to other railroads.

I think the idea of schools or schooling is fine. But, as has been said, the best place to train mechanics is out on the railroad or in M/W shops.

The manufacturers all have good servicemen and they do make an earnest endeavor to visit the railroads, both in the shop and in the field. Sometimes they are spread pretty thin because of the way we must use them. They are sent, a lot of times, to correct some minor condition that could be taken care of in a few minutes by a good operator or a good mechanic. So you see, good operators and mechanics will give our men more time to train your people.

Also those servicemen lose a lot of time when placing a new machine in service or finding a machine that is in trouble. We will be told that a ma-

chine is to be placed in service at Podunk on the 15th. We send the service man to Podunk, only to find that the machine is at Tank Stop, on another district, in another state, a couple of hundred miles away, and will not be placed in service or unloaded, until next week. If some of the calls of this kind could be eliminated, our regular service calls could be increased.

We have come a long way in the past few years in mechanization of track work. The situation as to service from the manufacturers, and with respect to the operation and maintenance of the machines on the railroads has improved greatly in the past few years, and must continue to improve.

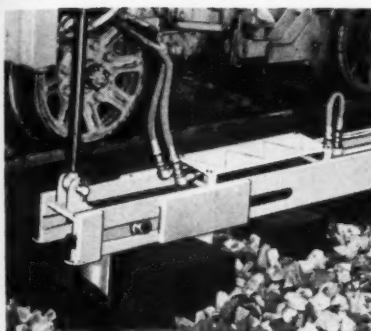
Moderator: To sum up, it appears that manufacturers want the work equipment people to make better use of the manufacturers' operating manuals and repair-parts lists. The railroad panel members say that the manuals and parts lists now furnished are not in sufficient detail and are confusing, and that they should be patterned after manuals and parts lists that are furnished by certain other manufacturers.

The railroad panel members want better service—more service calls—and say the servicemen are spread too thin. The manufacturer panel members want better use made of the servicemen. The present methods used by some railroads is the reason these servicemen are spread thin. The panel is in accord that training and schooling of operators and mechanics are necessary.

I should like also to call attention to the fact that, since mechanization, the backbone of good track is no longer a good foreman and a good track man, but rather a good operator, a good mechanic, and a good foreman. Another member has pointed out that, where management insists upon good operators and mechanics, they get them.

The railroads have millions of dollars invested in roadway machines and work equipment. To get a full return on this huge investment they must get full production from their machines. Competent operators and mechanics will reduce down-time, abuse of machine, and costly repairs, as well as insure maximum production.

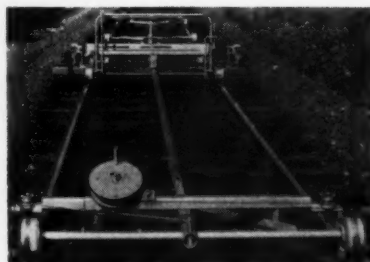
It has been stated that it is the responsibility of the railroads to train the operators and mechanics. Some railroads, despite the difficulties which they encounter in doing so, have set up workable and comprehensive training programs for operators and mechanics. So, we feel that some progress has been made, but there is still much to be done.



Modifications made to . . .

Tie spacer

A NEW rail-clamping mechanism has been added to the RMC Tie Spacer which is claimed to provide positive gripping of the rail even in the presence of grease or severe rail wear. The machine is equipped with hydraulic shifting devices on both sides, which are used to correct poorly spaced or slewed ties. The force necessary to move the tie is transmitted to the rail through the clamping mechanism. This is stated to permit a relatively lightweight machine. *Railway Maintenance Corporation, Dept. RTS, Pittsburgh 30, Pa.*



Lightweight device for . . .

Track surfacing

LOW SPOTS in track surface are claimed to be located and corrected by the use of the Nordberg Midget Surfer. Consisting of one four-wheel carriage and three two-wheel buggies, all connected in a train, the device uses a 50-ft long wire stretched between the end units at a point 8 in above each rail to search out low spots. The carriage is located between the buggies and has mounted on it a cross-level board, pointer assembly, pushing handle, two brake rods, tray for tools and equipment and two shelves for hand jacks. The pointer assembly consists of two pointers, one for each rail, and a graduated scale which indicates the amount of correction required. One end of each pointer is in constant contact with the wire above each rail. The manufacturer states that the wire is the "sighting" element on the Midget Surfer

and each wire and its pointer analyzes the surface of the respective rail independent of the other rail. When a low spot is found the device is moved back and forth along the track to determine the lowest point in the spot. A hand jack is used to raise the track back to surface, as indicated by the pointer. A tie adjacent to the jack is then manually tamped to hold the correction until all ties at the corrected spot can be tamped. In addition to locating and correcting irregular surface, the Midget Sur-

fer can be used to analyze the quality of track surface or, it is said, to maintain the surface in accordance with predetermined standards.

Aluminum has been used in the construction of the device wherever possible, and the unit is insulated. It is claimed that two men can set the Midget on or off the track since the heaviest element, the four-wheel carriage, weighs only 200 lb. *Nordberg Manufacturing Company, Dept. RTS, Milwaukee, Wis.*



Hydraulic operation for . . .

Tie remover

HIGH-SPEED removal of ties from track is claimed for the new Fairmont W68 Series B hydraulic tie remover. The machine is stated to be self-propelled and operated by one man. It is equipped with a double

pump and an automatic control for changing over to high pressure when maximum push is required to remove tightly embedded ties. Pneumatic set-off wheels and extension lift handles are provided in order to allow three men to remove the machine from the track. *Fairmont Railway Motors, Inc., Dept. RTS, Fairmont, Minn.*



One-man operation for . . .

Brush-type cribber

SELF-PROPELLED and operated by one man, the new Kershaw brush-type Kribber utilizes the same cable-hose brushes used on the Crib-Adze machine. This type of brush is claimed to give long cribbing life and economical operation. The machine is equipped with two brush wheels for uniform cribbing, a depth gauge for determining the depth of cribbing and a mechanical drive to the brush components. *Kershaw Manufacturing Company, Dept. RTS, 2205 W. Fairview Ave., Montgomery 3, Ala.*

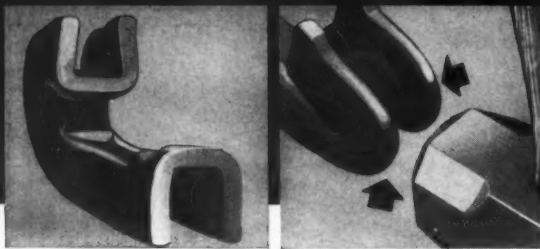


Reduce tie failures with . . .

Anti-checking irons

CHECKING and splitting of ties are claimed to be retarded by use of the new Koppers Krinkle-Lok anti-checking irons. (Continued on page 42)

HERE'S NEW



"U" channel provides rugged double-flange support for greatest gripping power, from end to end.

Double flange for wide striking surface. Channeloc is easy to apply with sledge, maul or machine — no skewing.

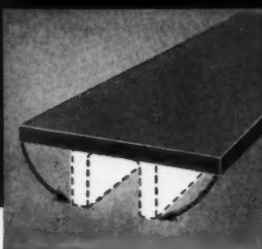
True Temper will help you see that anchors are properly applied. Contact True Temper, Railway Appliance Division, 1623 Euclid Avenue, Cleveland 15, Ohio.

Announcing the True Temper
CHANNELOC rail anchor ...
 one-piece construction from a
 solid bar of true-tempered steel

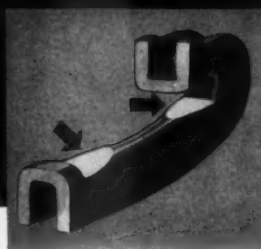
GRIPPING POWER...



Channeloc is 100% tie-bearing with generous contact surface. Won't disturb tie plates, because it doesn't touch them.



Thorough and even heat-treating of every Channeloc is assured by uniform thickness of bar stock.



Rail contact surface is accurately formed and ample ... keeps the Channeloc holding tight for a long, long time.



Smoothly formed contours distribute stress over wide area. Plenty of reserve gripping power for reapplication.

TRUE TEMPER
 RAILWAY APPLIANCE DIVISION

Products (cont'd)

(Continued from page 39)

The rib, which is claimed to lock the iron securely in the wood, is located in the center of the unit and extends its entire length. It is claimed, to act like the barb of a fish hook after being driven into a tie. The Krinkle-Lok irons are available in either an "S" or "C" shape. The "S" iron is used to retard checks in center grain ties, whereas the "C" iron is used to control checking and splitting that occurs in flat, vertical or mixed grain ties. Both styles of irons are available in 5, 5½ and 6-in lengths. *Koppers Company, Inc., Wood Preserving Division, Dept. RTS, 750 Koppers Bldg., Pittsburgh 19, Pa.*



Folds for low clearances . . .

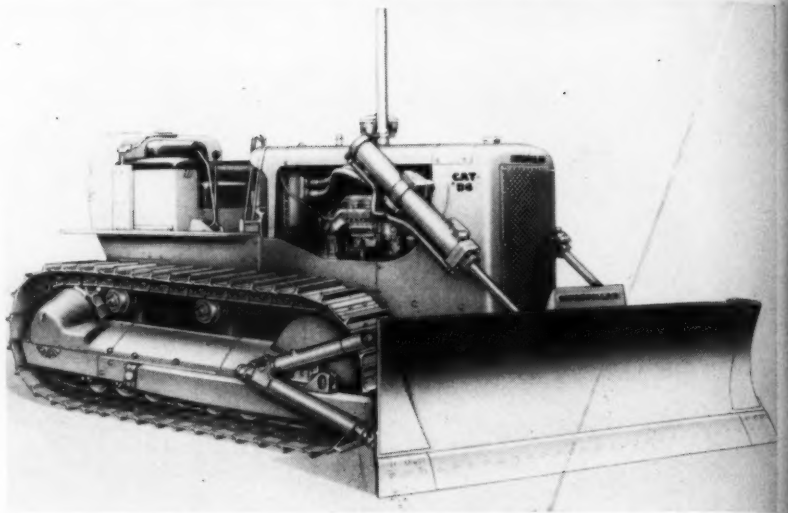
Truck and davit crane

BOOM of the new Thern Model H-550B truck and davit crane is designed to be folded down out of the way when the truck on which it is mounted has to move under a structure with low clearance. Folding is accomplished by removing one pin in the boom support. The manufacturer says the crane can be mounted on docks and platforms, as well as trucks. Maximum lifting capacity of the crane is stated to be 1500 lb with the extension boom at its minimum reach of 39 in, and 1000 lb with the boom at its maximum reach of 54 in. Powered by a Thern Model 44W heavy-duty, double-gear hand winch, the unit is stated to allow one man to safely lift heavy or awkward loads. Total height of the crane is 96 in; folded height is 51 in. *Thern Machine Company, Dept. RTS, Winona, Minn.*

Improvements made to . . .

Crawler tractor

GREATER machine and operator efficiency are claimed to result from major improvements made to the Caterpillar D6 Series B crawler tractor. Improvements

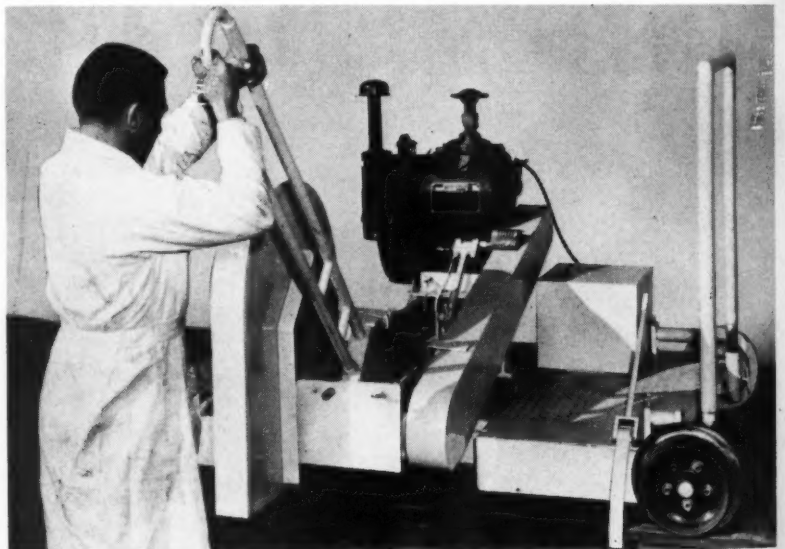


include a completely new and compact engine, two new hydraulic control units and a tilt cylinder for operating the bulldozer blade, and a new operator's compartment. The new engine delivers 93 flywheel horsepower at 1600 rpm and is stated to give the tractor 25 per cent greater lugging ability. Greater air flow to the radiator has been permitted by locating the hydraulic control pump and tank to the rear of the engine under the hood.

The hydraulic control units are claimed to deliver constant power for operating the

bulldozer blade. A check valve is located in the pressure line for the purpose of holding the blade in position when the control valve is activated. The hydraulic control cylinders are center-mounted allowing greater blade drop below ground level. The tilt cylinder is foot controlled for ease of operation.

The manufacturer states that the balance and stability of the machine has been improved and that it can work safely on steep side slopes. *Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.*



Abrasive wheel used on . . .

Rail cutter

OPERATED by one man, the new NCG-Obear portable rail cutter uses a 26-in abrasive cutting wheel to crop rails in track. The manufacturer states that the machine can cut most rails in track in less than a minute without the need of water or oil lubricants and that it can also be used to crop secondhand rail preparatory to welding. The cutting wheel is mounted on

ball bearings and is powered by a 24-hp, 4-cycle engine. The life of the wheel is lengthened, it is stated, by the use of a mechanically driven oscillator which moves the wheel ½ in off center, forward and backward. Maximum protective shielding is provided for the operator, it is claimed. The cutter weighs 1200 lb and consists of a steel frame. It is 7 ft 2 in long, 4 ft 2 in high and 4 ft 2½ in wide. *National Cylinder Gas Division, Chemetron Corporation, Dept. RTS, 840 North Michigan Ave., Chicago 11.*



This secondary line track of the Western Maryland Railway was treated with Du Pont "Telvar" at 15 lbs./acre in combination with other weed killers. Note the type of vegetation nearby and the sharp contrast beyond treated area at right.

Keep roadbeds clean all season long ... base your weed program on Du Pont Weed Killers

To clean up weeds and grass on your roadbeds and rights-of-way effectively and economically, use Du Pont "Telvar" monuron or "Karmex" diuron weed killers—either separately or in combination with other weed killers. Just one application of these herbicides controls weeds for a season or longer, cuts maintenance costs considerably. And both provide long-lasting, residual action that often permits lower application rates in succeeding years. "Telvar" and "Karmex" are easy-to-mix wettable powders—and are non-flammable, non-volatile, non-corrosive and low in toxicity to man and animals.

Choice of "Telvar" or "Karmex" depends on soil types and moisture conditions. For information on which one meets your requirements best and assistance in maintaining an effective, low-cost weed control program, write: Du Pont, 2543 Nemours Bldg., Wilmington 98, Delaware. In Canada: Du Pont of Canada, Ltd., P. O. Box 660, Montreal, P.Q.

On all chemicals, always follow label instructions and warnings carefully.



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Weed and Brush Killers

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weed killer

diuron
weed killer

weed and
brush killer

weed killer

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and brush killer

Wheel toe-in of rail-highway cars

Should the front rubber-tired wheels of railroad-highway vehicles be "toed-in" to the same extent as on conventional automobiles? Why? What measures are necessary to assure that the proper toe-in angle will be maintained? Explain.

Check rail wheels

By A. G. BEATTY
Supervisor Scales and Work Equipment
Chicago & North Western
Chicago

The front rubber-tired wheels of the vehicle should be toed-in to the same extent as recommended by the vehicle manufacturer for highway use. The angle should be checked periodically by an alignment shop, especially if the vehicle has been derailed.

The front wheels on most highway vehicles are toed-in to compensate for the deflection due to rolling resistance when the vehicle is in motion. The toe-in stabilizes steering, prevents side slipping and excessive tire wear. When these vehicles are operated on the rails, this same deflection of the highway wheels occurs but at a slightly lesser degree because less weight is carried on them. I cannot imagine an operating condition in which any benefits would be derived from a zero toe-in.

However, more important than toe-in of the rubber-tired wheels is the proper alignment of the rail wheels, their toe-in and maintaining the proper amount of weight carried by them.

Same as highway autos

By C. E. JACKMAN
Assistant Chief Engineer—Maintenance
Baltimore & Ohio
Baltimore, Md.

This subject has been the source of extensive investigations on our part, inasmuch as any adjustments necessary to make a vehicle adaptable for rail operation must also be within the limits to permit safe highway operation.

It is our opinion that the toe-in on rail-highway cars should be the same as on conventional cars and trucks. These vehicles are normally operated on the highway for at least 50 per cent of the mileage. If the toe-in were altered, the result would be very rapid wear of the front pneumatic tires. Also, the turning radius of the vehicle would be restricted and steering would be difficult. The only maintenance required, as far as toe-in is concerned, is the normal or periodical front-end check, the same as is performed on a private automobile.

The following can change toe-in:

(1) Bumping curb hard while parking.

(2) Constant travel on extremely rough roads.

(3) Derailed of vehicle while in rail operation.

After any of the above circumstances, the car should be tested on a reliable frame-checking machine. Even though the vehicle is not involved in an incident which might change the toe-in, it is felt advisable to have this feature checked at least every 60 days to assure proper adjustment of the front wheels.

Depends on rail use

By J. V. ADAMS
Supervisor Materials & M/W Equipment
Pennsylvania
Pittsburgh, Pa.

We must first determine if the rail-highway vehicle is to be used the majority of the time on the highway or on the rails. If on the highway, I would say the manufacturer's specifications for toe-in should be maintained as in the conventional automobile. However, if the vehicle is used on rails the majority of the time, the toe-in is of no great value as the steering mechanism is locked in straight forward position and a percentage of the weight is carried on the rail wheels.

The idea of the toe-in by the early automobile engineers and designers was to make steering easier and, more particularly, to make the car self-steer-

NEW QUESTIONS to be answered in July

Do you have an answer to any of the questions listed below? If so, send it in. Payment—based upon substance and length—will be made for each published answer. If you wish your name withheld, we'll gladly comply.

DEADLINE: May 30

● 1. What factors are involved in the proper functioning of insulated joints? Is any regular attention necessary? If so, what?

● 2. How often should paint-spraying equipment be cleaned? Describe the best way to do this.

● 3. When hauling and distributing cross-ties by truck, should the ties be loaded crosswise or lengthwise with the truck bed? Why?

● 4. Many offices, yardmaster's towers and computer rooms are air-conditioned in summer. What is the best way to prevent or alleviate the formation of condensation on the walls and ceilings of such rooms and the dripping of moisture? Explain.

● 5. Some employees, after the minimum qualifying period, develop undesirable characteristics which often im-

pair the efficiency of a gang. What measures can a railroad take to meet this situation? Also, what steps can be taken to assure desirable "career" employees? Explain.

Send answers to:

What's the Answer Editor
Railway Track & Structures
79 West Monroe Street
Chicago 3, Illinois

Do you have a question you'd like to have answered in these columns? If so, please send it in.



**"And, at the recommendation of our two most traveled passengers,
I hereby move that Chipman Weed Killers be used on our railroad."**

A broad line of Chipman weed, grass and brush killers is available. Each is formulated to solve specific vegetation control problems. Most widely used are these trade-name products:

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These chemicals, as well as our special application service and equipment, are backed by almost a half century of extensive railroad weed control experience.

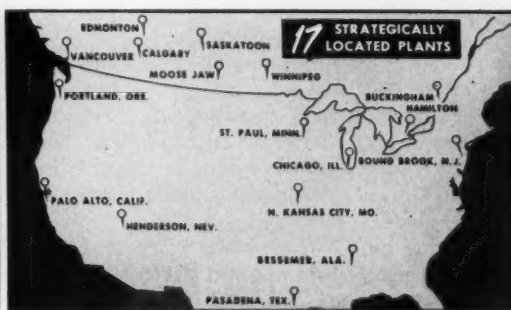
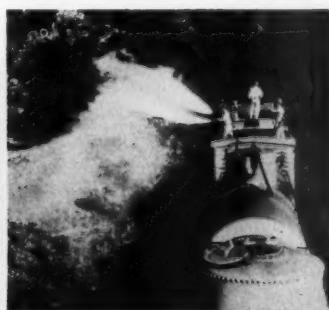
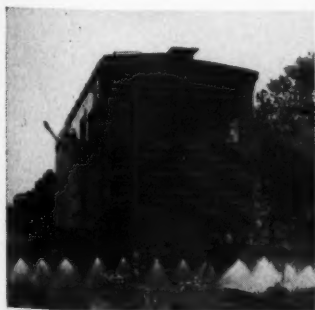
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What's the answer? (cont'd)

ing on plain, level, straight-ahead roads.

To maintain the toe-in a regular periodic examination would have to be made, such as checking the weight placed on the wheels when using the automobile in rail travel.

To car builder's specifications

By FAIRMONT RAILWAY MOTORS, INC.
Fairmont, Minn.

In general the toe-in on the front vehicle wheels is relatively small and unimportant when "on rail." Since the vehicle must be capable of completely normal highway operation, sometimes at relatively high speeds, it is our practice to follow the manufacturer's recommendations as to toe-in, caster and camber.

The front-end geometry of the vehicle is rechecked and set to the manufacturer's recommended standards after the application of the rail equipment so as to minimize the effect of the added weight. Subsequent checks should be made whenever the hand-

ling or tire wear indicates misalignment. These checks should be made by a qualified shop specializing in "front-end alinement."

Not on rail wheels

By E. W. Cox
Manager Railway Sales
W. T. Cox Company, Inc.
Kansas City, Mo.

In the manufacture of our company's Rail-Road Conversion Units we do not provide toe-in for several reasons.

It is our opinion that the toe-in of the vehicle's front tires is adequate to center the vehicle atop the rail excepting at curves. Our steering-wheel locks are designed so as to provide freedom of movement of the vehicle's steering mechanism so that the toe-in will center the tires upon the rail.

The obvious purpose of the use of toe-in on flanged wheels is to minimize crowding on sharp curves or turnouts. This crowding is caused by an excess length of wheel base between front and rear flanged wheels. In most cases, a rigid flanged-wheel attachment is limited to a wheel base of under 18 ft for

proper movement through most turnouts without excessive crowding or binding. Since only a portion of the weight of the entire vehicle is upon the flanged wheels on most installations, successful negotiation of all curves and turnouts is dependent upon a minimum amount of this crowding.

An alternate solution to the use of toe-in on flanged wheels having a wheel base greater than 18 ft would be to arrange a form of pivot or steering to eliminate rigidity or squareness. Our company is doing this with long wheel-base vehicles in our new unit designed for heavy trucks, cranes, etc., by utilizing a pivoting flanged-wheel assembly. Another principal objection to toe-in on flanged wheels is that they are "toed-out" at the opposite flange when reverse movement of the vehicle is involved.

Similarly, where front wheels are toed-in and rear wheels are toed-out to handle sharper curves, a serious situation may be created if misalignment of the rear unit occurs. This would cause a sharper flange effect.

In summary, our engineering indicates that no toe-in is required on short wheel-base vehicles and a more logical solution can be found for long wheel-base vehicles.

Detecting decay in wood stringers

How can bridge inspectors determine whether decay is present in stringers of open-deck trestles? Of ballasted-deck timber structures? Explain fully.

Read failure signs

By E. F. SIMONSON
B&B Supervisor
Spokane International
Sandpoint, Ida.

To begin, one new 9-in by 18-in stringer under each rail with a span of 14 ft will carry traffic safely for a short time at low speeds. Of course this is not done, but the size and number of pieces used affect the life of the stringers. Many standard plans are used as to the sizes and number of stringers needed. We use a chord of three 9-in by 18-in stringers under each rail for average spans of 14 ft, with the stringers resting on 12-in or 14-in wide caps. Average life of untreated stringers is 18 years.

Untreated stringers: During the first 10 years there is little change in the appearance of stringers. They turn gray and gather water stains. I have found some checking or separation of fibers on the ends of the stringers at 10 years. This is usually a sign that this particular timber is carrying more weight than the others. This may be caused by unequal sizing, or perhaps this timber did not shrink as much as the others or it may have been bowed. At any rate the damage is done. After the fibers have been separated the timber absorbs excessive moisture. In general, decay has started at this point.

At less than 10 years I have found stringers with decay on the bottom side at the cap-bearing point. Decay

begins earlier in a cap and works into the stringer. The bearing surfaces should be checked when the caps are renewed.

Another sign is a black stain on the surface of the timber. Most of the time black water stains will be found which are only skin deep; these are merely surface stains. In other cases advanced decay will be found under a shell of semi-sound wood. This usually occurs late in the life of the timber. Over the years the various stains will become familiar and the differences can easily be determined. Hammer testing will give proof of absence or presence of decay at stained sections. Hammer testing will help in determining the soundness of any timber by the sound of the blow, whether live or dead. I usually use the hammer test until such time that the timber begins to lose its life or some other evidence of failure appears.

Testing of timber by boring will reveal the extent of decay and the

Switches last years longer with Racor vertical rods

The heavier the service, the more your turnouts will benefit from Racor vertical switch rods. These rugged rods give three advantages: they pivot, they can be adjusted, they give added support to switch points.

Whether hand, machine, or spring operated, every heavy duty switch will throw more easily and line up more accurately, with rods that pivot instead of bending. Easy, positive adjustment promotes trouble-free service — both of switch mechanism and related signaling equipment. And the added support means that the points wear more slowly and stay in adjustment longer.

Racor vertical rods are your assurance of satisfactory switch operation through the years. Your Brake Shoe representative will be glad to give you details. American Brake Shoe Company, 530 Fifth Avenue, New York 36, N. Y.

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Advantages of Racor Type MJ Vertical Switch Rod include positive engagement of rod to clip, assured by meshing serrations, eliminating wear of rod bolts and bolt holes. Big journal, with provision for lubrication, supports switch point with precision. Fine adjustment permits accurate setting of switch throw and reduction in inventory because one rod can be used in various locations.



AMERICAN
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COMPANY

What's the answer? (cont'd)

amount of sound timber remaining. The stringers may be bored from the outside at a line even with the edge of the cap and from the bottom at the edge of the cap. I have seldom used the auger test until a crushing condition appeared at the cap or the softening of a particular stringer is indicated by spreading. Decay may be present in a timber but it still can have a continuity of sound fibers holding the wood together, doing its share of work.

Treated stringers: With treated timber visual inspection must be painstaking, especially if lesser grades of timber are used. The checking or separation of fibers could begin earlier because seams, which had pitch in them during the treating process (creosote pressure treatment), will cause a loss in bond usually at the ends of the timbers. Decay in treated timber may begin at the heart or center of the timber. Sometimes it is dry rot. The tree may have been over-ripe or moisture may have been confined in the center, in which case decay started immediately.

As an example, a few days ago our B&B crew replaced a treated cap which was three years old this month. This was 12-in by 14-in by 14-ft native Idaho tamarack, pressure-treated with creosote. This cap showed signs of crushing at the top and bottom, with bulging at the sides. On inspection it

was found to be a butt cut in coarse grain. It was evident that this timber was pitchy and the fibers became separated during the treating process. This is an unusual case but it points out the necessity for cautious inspection. Check for crushing and bulging of sides.

Hammer testing of treated timber should be carefully done. Whenever "hollow" sounds are produced, it would be advisable to make borings to check for decay. Early failure of treated timber is usually due to physical characteristics present before treatment.

Finally, all failure signs seen in a timber should be noted and the changes compared from year to year. The progress of stains, checking or separation, the spreading or bulging of a particular timber should be watched. Also, any excess of knots, their size and position should be noted. The bow, warp and the seams should be examined. During 30 years of bridge work I have not seen a timber fail suddenly in a standard trestle. The process is slow and through watchful inspection you can determine when the timber must be replaced. By reading all the signs over the years, you gain a set of dependable rules which are all your own.

I have had no experience with ballasted decks but presume you must rely on the same methods as used on open-deck trestles.

Don't use dead wood

By E. E. CASH
Supervisor of Maintenance
Camas Prairie
Lewiston, Ida.

We have a good many bridges. Our largest wooden bridge is 147 high, 668 ft long and built on a 14-deg curve on a 3-per cent grade—all on subsills. I doubt if my way of determining decayed timbers would fit anyone else's ideas, as I know decayed sill-posts or stringers just by looking at them. Gravel-deck structures are no exceptions. This I gained from over 40 years of experience in the B&B department.

To get the right answer a hole should be bored with a small bit, say $\frac{3}{8}$ in or $\frac{1}{2}$ in. If this is done in treated timber, the hole should be plugged with a treated-wood plug. The above would also apply to ballasted-deck bridges. If a ballasted-deck bridge is constructed of treated timber that is cut to fit before treatment, and 150-lb asphalt paper with two or three layers of asphalt is mopped on, the underside should be sprayed with a strong salt brine after the job is done. Such construction should make the bridge last for 50 years or more.

The greatest trouble I find with treated timber is that it was dead wood before it was treated. In my opinion, railroads could save a lot of money by getting the right kind of timber and drying it (box heat) before it is treated.

Ventilating prefabricated buildings

What are the determining factors for ventilating prefabricated metal buildings? How should dampers be used for the proper control of ventilation? What type of screens should be used and what allowances should be made for air flow? Explain.

Manufacturer's recommendations

By V. J. WELCH
Principal Assistant Engineer
Bangor & Aroostook
Houlton, Me.

In referring to prefabricated metal buildings, I am assuming that you mean a standard manufactured-type metal building erected at the site.

The proper ventilation of metal buildings is a serious and real problem in this climate. We have had one un-

fortunate experience with a heated building which did not have a ceiling. The insulation was applied over the underside of the purlins after the building was erected. This insulation is continuously wet, has broken away and is hanging down, presenting a very unsightly appearance. We have attempted to remedy the situation with the addition of end louvers to supplement the roof ventilators, but have had no success.

Presently we are using metal buildings to house cripple-track facilities, for section-car houses and for bunk houses. In these buildings a full metal ceiling is placed over the heated areas and insulated with 3-in ($\frac{1}{2}$ -lb) batts. Any heating ducts running above the ceiling are also well insulated.

For the small buildings, 12 ft to 16 ft in width and up to approximately 30 ft in length, we have taken the manufacturers' recommendations for ventilation and have installed stamped louvers in the gable ends. For the wider buildings, i.e., 16 ft to 28 ft in width and over 30 ft in length, we have installed end louvers and have also used 8-ft by 4-in low ridge-type ventilators with the damper continuously open. The roof ventilators are approximately 50 ft on centers, and located symmetrically on the buildings. To date we

nave not had any trouble due to the formation of condensation in buildings of this type.

During the coming summer we are planning to erect a 60-ft by 160-ft metal equipment-repair building, which

will not have a ceiling. In this building it is planned to place 3-in ($\frac{3}{4}$ -lb) batts over the purlins and directly under the roof panels. We will also install two 10-ft by 9-in low ridge-type ventilators equipped with adjustable dampers. We

do not use forced ventilation over the ceiling in any of our metal buildings.

If there is any question about the amount of louver area to provide, we always install more than is recommended.

Use new or old spike holes?

When laying new rail having the same base width as the rail being released, should spikes be redriven in the old holes or into the unused tie-plate holes? Why? If the latter, should plugs be driven into the old holes? Why?

Preserve spiking pattern

By M. A. MALLON
Superintendent of Maintenance
Detroit & Markinac
Tawas City, Mich.

For the past two or three years we have been laying rail in the winter. If possible, we work the track the previous fall, replacing the necessary ties and making any corrections in the line and grade which might be necessary.

We have been primarily relaying curves, so the jobs vary from one-quarter of a mile to a half-mile, or perhaps three-quarters of a mile, in length. We have not been trying to set any production records for this winter work and have been doing it with our regular district gangs.

In most cases the rail we are installing has the same base as the rail being released. We usually use the following procedure:

After unloading the rail with a crane, we use our weed burner to clear off the snow the full length of the curve. We then start on the high rail and pull only the inside spikes. This means, of course, that we have to re-drive spikes in the old holes. We have had satisfactory results with this method. If there is an occasional hole in which the spike is loose, we plug it and re-drive the spike in the same hole.

On our railroad the rail is normally spiked to the north, which means the inside spike is north of the outside spike. If we were to change the spiking on the curves which we relay, we would have a problem when we install ties at a later date.

In some cases while relaying curves, we have been unable to renew ties the previous fall and have had to plug the

old holes. However, we still spike into the plugged hole.

I feel that the spikes should be re-driven into the old holes. If the hole is so loose that a plug must be inserted, the chances are that the tie needs replacing and this is done as soon as we can.

The few times that we have not been able to replace ties before we lay rail, we have made it a point to go through that track in the spring to replace the ties.

If, as a matter of policy, a road does permit driving spikes in the unused tie-plate holes, then definitely tie plugs should be placed in the old holes. This is particularly true in the case of creosoted ties. Even if the ties are pre-bored, the driving of the spike in the hole will open up the raw wood. If the old hole is not plugged, water will collect and hasten the rotting of the ties.

We have been using Osmose-treated ties for the last five years and believe it is not necessary to plug old tie-plate holes. This is because the moisture which collects in the old holes normally just moves the treatment deeper into the wood.

Use same spike holes

By FRANK CHIDO
Roadmaster
Denver & Rio Grande Western
Helper, Utah

I would plug the hole and drive the spike into the same hole. I would not drive the spike in the unused tie-plate hole because you would not be able to completely seal the unused old hole. This would let moisture enter the tie causing it to get soft and decay

much sooner. Even if it doesn't decay right away, it will get soft and would not hold gage or surface properly.

Plugs should be driven into the old holes because when the spike is driven it would be tight and would not have a tendency to work back out. Also, it would keep moisture out from around the spike which would occur if it was loose in the hole.

Depends on plate reuse

By F. T. BERTA
Supervisor of Track
Elgin, Joliet & Eastern
Joliet, Ill.

If the tie plates are also being renewed, all spike holes should be plugged and spikes should be driven into the unused tie-plate hole. I believe that driving a spike into solid wood has more holding power than driving it into a hole that is plugged.

However, if the same plates are being used, it seems foolish to pull all the spikes. A saving in time and material can be effected by simply pulling the inside spikes, driving plugs into the holes, and respiking the plugged holes. If the gage is not uniform, it would be necessary to pull all the spikes from one rail only at the irregular spots to bring the rails to proper gage.

Whenever spikes are pulled from a tie that is still in service or can be used in other locations, all spike holes should have tie plugs driven into them. If this isn't done, water, dirt and other foreign materials lodge in the holes to speed decay in an otherwise usable tie.

Drive in fresh wood

By FRED WARNER
Roadmaster
Union Pacific
Pocatello, Ida.

When rail is relaid with new rail having the same base width, the tie plates should be removed, the ties re-

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What's the answer? (cont'd)

plugged and adzed to correct any irregularities of rail cant. The latter may have occurred under traffic by the plates cutting deeper into the ties on one end.

Replugging is necessary to prevent moisture from penetrating into the center of the tie to cause rot and shortening of tie life.

By driving spikes into the unused holes of the tie plate, the spikes are driven into new or fresh wood. Thus the gage can be corrected and held better because spikes driven into tie plugs have a tendency to follow the plugs and, in many cases, split the tie. This practice will also put the spikes in solid wood of many ties that were split by previous spiking under the old rail.

Don't change holes

By H. V. BORST
Track Supervisor
Delaware & Hudson
Carbondale, Pa.

When spikes are pulled for any reason, the hole should be reused or plugged to avoid decay. If the spikes are pulled on one side only of slow-speed track, I would reuse the same hole without plugging. In most cases some sand and dirt will fall into the holes because the spikes are rusted away, so new spikes should have holding power.

On high-speed track the holes should be plugged. At no time should the other hole be used because, if spikes are placed opposite each other, it causes tie splitting. If necessary to double spike to hold gage, one of the offset holes in the tie plate should be used. I would prefer the inside one. If it is necessary to pull all spikes to correct gage, all holes should be plugged.

Most railroads try to hold to the same spiking pattern. Outside spikes are all set either ahead or back relative to the flow of traffic. I believe this helps to keep ties from skewing. If it is necessary to plug holes where spikes have been pulled on one side, the plugs should be driven down as far as possible and then broken off flush with top of tie plate before starting to drive the new spikes.



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Here are the up-to-date facts on the SPENO Ballast Cleaning and the SPENO Rail Grinding Services.

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SPENO Engineering and Research has developed a superior screening arrangement so that we are now using an improved Ballast Cleaner with greater efficiency.

RAIL GRINDING

Our Rail Grinding Service has been so well received we are now building a *THIRD* Rail Grinding Train to take care of the increased demand.

SPENO is constantly developing means for better service to make sure that the Railroads receive everything they pay for — and more



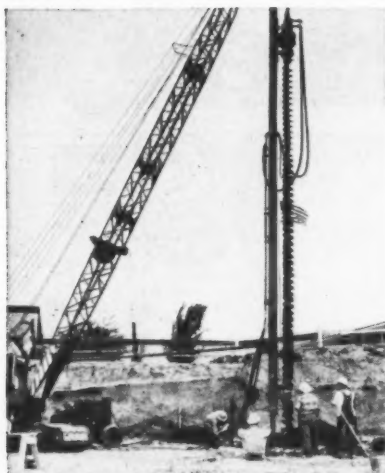
Just Ask the Railroads That have used us!



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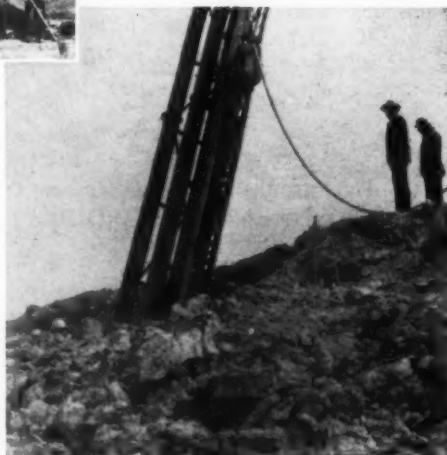
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Pre-boring 40 feet deep for pilings

On a new railroad bridge, Ka-Mo drill was used in conjunction with crane pile driving unit. Photo shows how the 12" diameter drill, with 18 h.p. air motor, bored "angle" holes 40' deep through compacted fill for pilings. Ka-Mo drills also save time on: french drain installations, soil testing, holes for signal poles, posts, etc.



How KA-MO drills save time, money for railroads

New hydraulic unit

is shown here drilling 16" diameter holes 30' deep for cast-in-place concrete piling. Fast production was obtained by using continuous drill flight.

24-IN. x 106-FT. bore under railroad bed



Ka-Mo horizontal drill, powered by an 18 h.p. air motor, made 24" diameter bore inside casing, 106' long through compacted clay and ballast under railroad bed. *Actual drilling time: only 4 hours!* This fast, safe method of drilling and casing installation protects roadbeds against costly cave-ins.

Whether your work involves angular, vertical or horizontal drilling, it will pay you to check the Ka-Mo line. Drill sizes: 2" to 48" diameter, and larger . . . sectionalized lengths . . . air, hydraulic, electric, gasoline or diesel-powered. Engineering service is always available for those special installations. Just send coupon or phone us today.

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What's the answer? (cont'd)

Disposing of old ties

What is the most economical method of disposing of old ties from out-of-face tie-renewal operations in city and suburban locations? In rural locations? Explain.

Use-tie handling machines

By H. V. BORST
Track Supervisor
Delaware & Hudson
Carbondale, Pa.

Most railroads at the present time have modern track equipment known as "tie handlers."

On the Delaware & Hudson we have two RTW tie handlers with our main-line tie and ballast gang. One machine is used to pile all ties that are removed, the other to insert all new ties.

Where old ties cannot be burned, or given away, we couple a push car behind each tie handler on which each machine will load from 30 to 50 ties, depending on the grade. As these machines move along they unload the old ties along the right of way and from side tracks when clearing for trains. If all such ties cannot be picked up as the gang moves along, they are picked up when closing up at the end of the day, when waiting for the head end to move ahead after clearing for trains, or the next morning while waiting for the head end to get out ahead.

Our machines have roofs and, when the gang is held up by train, they can be used to dispose of ties, if necessary.

In rural locations ties can be burned, but some effort should be made to give them away to the highway departments, building contractors, etc. This will avoid the danger of fire and save the cost of burning and disposing of the stubs.

Sell what you can

By M. S. McCLENDON
Division Roadmaster
St. Louis-San Francisco
Tulsa, Okla.

The disposal of old ties released from out-of-face renewals is a many-sided question in which economics is

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Newest of the Mechanical Muscles® for Organized Mechanization is the Nordberg "Trak-Sweeper," used in track raising operations.

Utilizing a rotating impeller with four radially-mounted heavy rubber blades, this dual-purpose machine levels ballast in the track and across the crib area for better ballast distribution ahead of the tamper and removes excess ballast from the top of ties after tamping.

The Nordberg "Trak-Sweeper" is hydraulically propelled with a "super low" working speed of approximately 10 ft. per minute and travel speeds up to 15 mph. With aluminum used wherever possible in its construction, the light weight of the machine does not disturb the surface of the track when operating between the jacking means and the tamper.

Write for further details.

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When rail traffic approaches, rubber-tired Tournatractor merely pulls to one side... doesn't block traffic. Minutes later it's back at work... no delay to the job while moving work train onto siding.

How to handle scattered RR maintenance jobs **FASTER...CHEAPER**

Handle your scattered RR maintenance jobs faster... more economically... with only one man and a high-speed, rubber-tired Tournatractor®. This versatile LeTourneau-Westinghouse tractor travels the *quickest* route to any assignment — at speeds to 17 mph — over tracks, roads, cross-country, or right-of-ways. Big, low-pressure tires flex harmlessly over obstacles... do not damage rails, switches, or ties.

Makes right-of-way repairs before damage gets serious

218 hp Tournatractor handles your right-of-way maintenance fast... makes repairs before damage becomes serious. Equipped with dozer or Angledozer®, this tractor improves drainage, replaces eroded fills, repairs shoulders, cuts down banks, reinforces causeways and bridge approaches. One man, with a Tournatractor, can keep many miles of your line in tip-top shape for less than it used to cost to repair one major wash-out. Tournatractor needs no work train or crews... doesn't delay rail traffic... easily drives off right-of-way at approach of train.

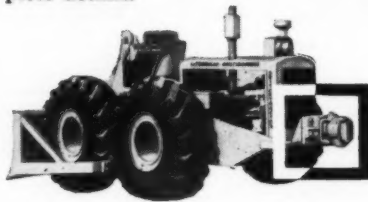
Handles variety of jobs

Tournatractor is also a profitable tool for stockpiling coal, cinders or

ballast. Big, low-pressure tires compact and seal coal piles against spontaneous combustion. This versatile tractor-on-rubber also builds sidings... push-loads scrapers... pulls scrapers, other heavy equipment... plows snow, and spots railroad cars.

For complete information

Why not investigate the high-speed L-W Tournatractor? Its off-track mobility and versatility can make important time and money savings for your line. Call or write for complete details.



SwitchTractor* — a standard 218 hp Tournatractor, equipped with Type E railway car coupler on the rear — handles scattered switching duties fast. This off-track switcher drives directly across yards, fields, ditches, for quick spotting, grouping of cars. SwitchTractor's big, rubber-tired wheels straddle rails, ride on ballast and tie-ends. Tires give 60 percent coefficient of friction — double the tractive effort of steel-wheeled switchers rolling on smooth, steel rails.

*Trademark CT-1810-RR-2/3

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What's the answer? (cont'd)

of first importance. It should be accepted that no hard-and-fast rule is applicable.

With the continually increasing cost of labor, it is no longer economical to make heavy insertions in sidings or other back tracks from ties released from these renewals.

Due to their many uses, such as for cribbing, platforms, retaining walls and fencing, and the fact that in most places they are readily accessible, the sale of old ties is attractive, particularly in rural areas.

Let supply and demand govern the sale price.

It is especially necessary to prepare a written contract form, permitting an outsider to come on the property, in order to protect the railroad's interest.

While in some areas there is no demand for old ties, the necessity for keeping the property cleaned up will make it most economical to use some form of loading device for ties. They can then be trucked or hauled by train to some locations where the ties can be dumped and disposed of as fill material, or burned.

Piled at crossings

By W. J. MOUNTAIN
Track Supervisor
New York, New Haven & Hartford
Walpole, Mass.

This year on my territory, which is mostly single track, I have used a Koehring crane equipped with a pair of timber tongs to load ties onto a push car attached by a long rod. This operation requires one foreman, one crane operator and one laborer.

I find this method saves time and labor and is economical in days when help and money are scarce. In doing it this way, we have done four times as much work in one day as any gang of 10 men would do in a week. The ties are unloaded at highway crossings so they can be picked up by those wanting them. However, many ties are piled up along the right of way and burned when there is snow on the ground. In doing it this way there is no danger of fire spreading.

I find this is the most economical means of disposing of old ties on my territory.

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ON OVER 200,000 TRACK MILES

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Here are 6 reasons why 17 railroads use the Mobil Agronyl R Program of weed control

1. ECONOMY—Agronyl R readily lends itself to self-application programs. Railroads have reduced weed-control budgets by over 40% through self-application of Agronyl R.

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6. TECHNICAL ASSISTANCE—A complete Mobil weed-control program is available with Agronyl R. The Mobil Agronyl R Program covers all aspects of this product's use.

94 years of helpful service to the railroad industry



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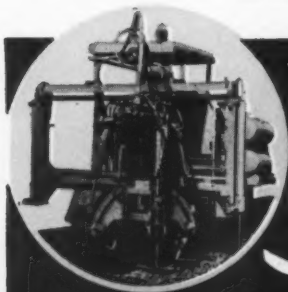
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MOST USEFUL
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RAILWAY MAINTENANCE CORPORATION

BOX 1888, PITTSBURGH 30, PA.



Products (cont'd)



Tie inserter added to . . .

Tie bed cleaner

TWO MEN can now both scarify old tie beds and insert new ties with the same machine, it is claimed. The manufacturer states that both jobs can be accomplished by the Kershaw Tie Bed Cleaner to which a new tie inserter attachment has been added. *Kershaw Manufacturing Company, Dept. RTS, 2205 West Fairview Ave., Montgomery 3, Ala.*



New gathering action for . . .

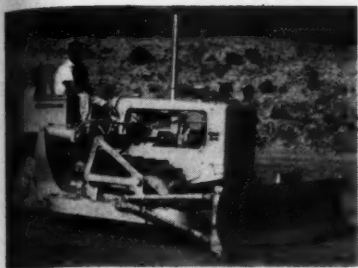
Tie grapple

FEATURING a "rolling curve" gathering action and gently curved sides the new Erie Strayer tie grapple rolls ties together, it is claimed, instead of crowding them into position for lifting. The manufacturer states that the design of the grapple permits it to open wider than most grapples. Other construction features claimed for the unit include positive socket and wedge cable attachments, cast steel sheaves, oversize pins and bushings, welded steel construction, T-1 steel lip edges and recessed Alemite grease fittings. The grapple is available for reeving lines up to 4 parts. *Erie Strayer, Dept. RTS, Erie, Pa.*

More lugging ability for . . .

Crawler tractor

RATED at 52 drawbar hp, the Caterpillar D4 Series C crawler tractor is claimed to have 25 per cent more lugging ability than previous models. Other improvements claimed for the tractor include a new starting system, greater ground clearance and a new hydraulic control for bulldozer blade or attachments. The Series C is powered by a new, compact four-cylinder engine



which is stated to deliver 65 flywheel hp at 1600 rpm. Maximum drawbar pull in first gear, with standard transmission, is claimed to be 13,000 lb. An optional lower speed transmission is also available which is stated to develop a maximum drawbar pull of 14,600 lb.

A new 42-gal fuel tank has been installed to allow operation of the machine for a full shift on one tank of fuel. The top rear of the tank has been given a forward taper to permit full visibility to the drawbar. It is available with both 44-in and 60-in gage and is equipped with the No. 143 hydraulic control for use with either a bulldozer blade or attachments.

Standard equipment includes an all-new gasoline starting engine with a manual off-track starter, five track rollers, and small idler. Optional equipment includes two in-seat electric starting systems, one for the gasoline starting engine and one for the direct starting of the diesel engine; hydraulic track adjusters; large idler and oil clutch. All track rollers, carrier rollers and idlers are lifetime lubricated and require no lubrication until they are rebuilt. Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.



Channel section for . . .

One-piece anchor

HIGH gripping strength is claimed for a new one-piece rail anchor because of its U-shape cross section which is said to provide double-flange support from end to end.

Other features claimed for the new rail anchor, named "Channeloc," are: Provision of 100-per cent tie bearing; smooth contours for stress distribution to conserve gripping power; wide striking surface for fast and sure application by man or machine; uniform heat-treatment because of uniform thickness of bar stock; and large and flat rail-contact surfaces. True Temper Corporation, Dept. RTS, 1623 Euclid Ave., Cleveland 15, Ohio.



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**WORKS WITHOUT
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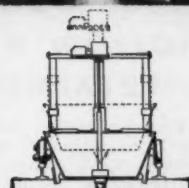
With sufficient lining speed to keep pace with the fastest mechanized gang, LineMaster exerts a horizontal push at base of the rail. It *does not* use weight of the rail for an anchor . . . and there is *no tendency* to raise the rail and disturb the surface.

May we discuss LineMaster performance with you?

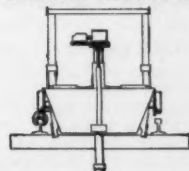


Railway Maintenance Corporation

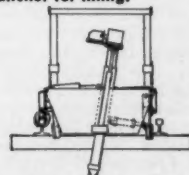
BOX 1888 PITTSBURGH 30, PA.



• Positioned at desired crib.



• Spud lowered to secure anchor for lining.



• Track shifted by hydraulic pressure.

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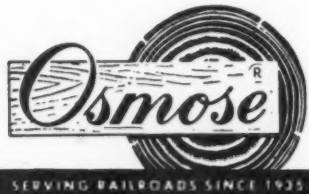


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The secret is flooding the cavity with a highly concentrated, special 24-12 penta solution to refusal under pressure. Decay is stopped cold. Your pilings remain sound and safe for years to come. No other method can match it.

OSMOSE Inspection and Treatment of in-place bridges and trestles is a thorough "top-to-bottom" operation. Pilings, framing, caps, stringers, ties, guard rails and underdecking are carefully checked. Drift pins, brace bolts and hard-to-get-at places are given extra attention with special OSMOSE-developed techniques.

Cost studies show that the OSMOSE in-place treatment averages between 1/20th to 1/40th the cost of replacement... actually pays for itself within the first 8 months of extended life. Get the facts on the quickest way to save money in today's railroad operation. Write: Bridge Inspection and Treatment Division, Osmose Wood Preserving Co. of America, Inc., 989 Ellicott St., Buffalo 9, N.Y.



To the Editor

Hopes for concrete tie

TO THE EDITOR:

I have heard a great deal about the concrete crosstie but have never seen any in use. I hope to see the day when they are generally used as I believe they will produce a great saving in the cost of maintenance.

One necessity will be to obtain a concrete tie that will not break all at once, as might happen in centerbound track. In similar instances, a wood tie has such flexibility that it hardly ever breaks.

The real problems, I believe, are to get a concrete tie which will not break suddenly and a fastening to the rail which will hold gage. Since the number of concrete ties required per rail would not be as great as for wood ties, I believe there would be a saving in the cost of installation.

J. H. Becker
Section Foreman (Ret.)
St. Louis-San Francisco
Festus, Mo.

Wants to take a leaf from the highway builder's book

TO THE EDITOR:

In building macadam roads, the various courses of stone are each laid to the required thickness and separately rolled. Each course is saturated with water to aid com-

paction before the next course is placed. Suppose we apply this technique to track. After raising the track on newly distributed ballast to the desired elevation, either by ballast forks or shovels and hand jacks or by power raising jacks and spot tampers, we would then pour water into the fresh ballast until it was saturated. Following this we would operate a production tamper to thoroughly tamp the water-saturated ballast under the crossties. We would keep traffic off the track until the tamped-to-refusal ballast was dry.

Would not track with this treatment remain in good line and surface much longer than the dry-tamped track we have today? I would like to see some perceptive discussion on this subject.

G. M. O'Rourke
Railroad Maintenance Engineering
Consultant and Analyst
Chicago

Biographical briefs (cont'd)

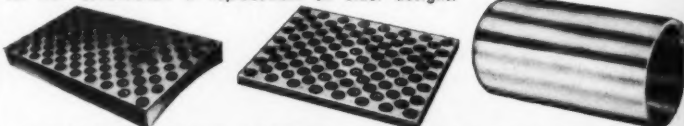
(Continued from page 10)

Bluff, Miss., and received his higher education at Texas Technological and Mississippi State. Mr. Harris entered railroad service in 1937 as assistant engineer on the Gulf, Mobile & Northern, now part of the GM&O, at Union, Miss. He was promoted to bridge inspector there the following year and to assistant engineer at Mobile in 1940. In 1942 he entered the U.S. Marine Corps.

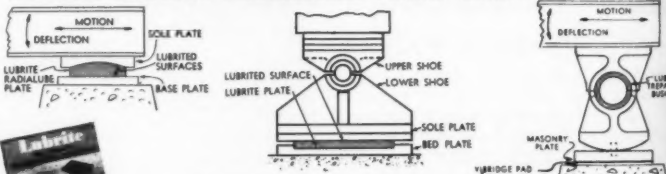
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For self lubricating security at its finest in the design of any bridge, overpass, building and as a replacement for rockers and roller nests, Lubrite offers many distinct and important advantages. Specifically Lubrite permits the use of simplified designs, cuts construction costs substantially, eliminates maintenance and offers a low coefficient of friction. Assure better results, longer life and unequalled performance — specify Lubrite for new construction or replacement on older designs.



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STRUCTURES



The mowers that chew up heavy brush...

center-mounted heavy-duty International® Danco rotaries

Is dense, tangled, hard-control overgrowth giving you a serious maintenance problem? Then, be sure to investigate heavy-duty International Danco rotary mowers mounted on IH tractors. These outstanding combinations of power and amazing cutting capacity provide *positive* brush and weed

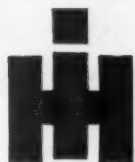
control at surprisingly low cost. Center-mounting produces a safer, better wheel grip to mow side slopes as steep as 2:1. Exclusive non-wrap spindles insure non-stop mowing even in wet or wiry growth. Level-lift feature lets operator change cutting height on-the-go. Optional 10-speed Torque Amplifier drive gives him the speed he wants. You'll get extra seasons of the best mowing performance you've ever known with one of these versatile, heavy-duty units.

Let your nearby IH dealer show you why International Danco rotaries and IH tractors are your most productive, most dependable, and safest choice in mowers. 58 to 94-inch cutting widths available. For dealer's name and specification sheets, write International Harvester Company, Dept. RTS-4, P. O. Box 7333, Chicago 80, Illinois.



Tremendous cutting power of International Danco rotaries and IH tractors quickly pulverizes saplings, heavy brush, and rank weeds. Shown is the 45-hp* F-340 with 66-inch rotary. Three-spindle model on 61-hp* F-460 cuts a 94-inch swath.

* Maximum flywheel hp at standard sea level conditions.



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RAILWAY TRACK and STRUCTURES

APRIL, 1960 59

Biographical briefs (cont'd)

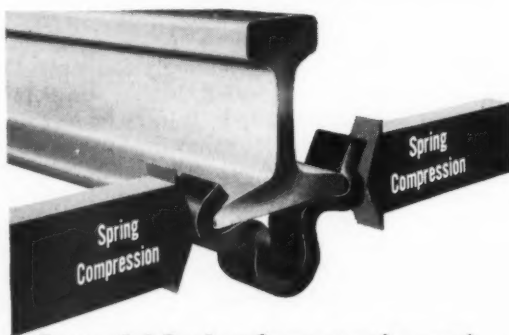
serving until 1946 when he returned to his former position. Mr. Harris was promoted to principal assistant engineer, system, also at Mobile, in 1957, the position he held at the time of his recent promotion.

Louis Rossman, 55, who recently retired as division engineer on the Erie at Salamanca, N.Y. (RT&S, Feb., p. 10), was born at Philadelphia, Pa., and received his higher education at Pennsylvania State University. Mr. Rossman commenced his railroad career in 1929 as a rodman at Salamanca,

later being promoted to chief of corps. He was further promoted to general yard foreman at Hornell, N.Y., in 1934, track supervisor at Butler, N.J., the following year and assistant division engineer at Huntington, Ind., in 1936, serving also in that capacity at Salamanca and Hornell. In 1942 he was promoted to division engineer at Dunmore, Pa., being transferred to Huntington two years later. From September 1944 to April 1946 he was with the U.S. Army Transportation Corps, serving in Europe. Returning to the Erie in the latter year he was appointed division engineer at Dunmore. Mr. Rossman was transferred to Salamanca in 1946.

The powerful symmetrical grip of **WOODINGS** Advanced Type **RAIL ANCHORS** provides more Holding Power than you ever need

THIS IS HOW THE WOODINGS
ANCHOR DEVELOPS ITS STRENGTH



Powerful Spring Compression and
4-point symmetrical grip makes **WOODINGS**
the World's **MOST POWERFUL RAIL ANCHOR!**

- ★ **BEST for Welded Rail**
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WOODINGS FORGE & TOOL COMPANY

Main Offices and Plant, Verona, Pa. Sales Offices, Chicago, Ill., St. Louis, Mo.



Association News

Mississippi Valley Maintenance of Way Club

The April meeting of the club will be held on the 11th and will feature a moving picture and discussion on construction of track panels for use in industrial and side tracks. The program will be presented by the engineering staff of the Southern and is entitled "Prefabrication of Track in Panels."

The next meeting will be held on May 9. The principal speaker will be Harry H. Stuhldreher, assistant to vice president of personnel, United States Steel Corporation, and one of the "Four Horsemen of Notre Dame." He will talk on "Learn and Live."

Both meetings will be held at the Ambassador-Kingsway Hotel, 108 North Kingshighway, St. Louis, Mo. The social hour starts at 5:30 p.m. with dinner following at 6:30.

Northwest Maintenance of Way Club

The next meeting of the club will be held on April 28 at the usual location, Coleman's Cafe, 2239 Ford Parkway, St. Paul. Principal speaker will be Bill Gove of the Bill Gove Organization, Coral Gables, Fla. He will talk on "Railroaders Selling Railroad" to John Q. Public."

Metropolitan Maintenance of Way Club

The annual business meeting of the club will be held April 28 at the Railroad Machinery Club, 30 Church St., New York. At the time of going to press the program had not been announced.

Maintenance of Way Club of Chicago

The program at the April meeting, to be held on the 25th, will be presented by the engineering staff of the Southern. It will be held at the usual location, the Hamilton Hotel, Chicago.

National Railway Appliances Association

At the annual business meeting held at the Hotel Sherman, Chicago, on March 15, representatives of the member firms, elected the following officers and directors:

President—Kenneth Cavins, Fairmont Railway Motors, Inc., Chicago; vice-president—J. P. Kleinkort, Railroad Products Division, American Brake Shoe Company, Chicago; treasurer—G. R. Betts, Armac Drainage & Metal Products, South Bend, Ind.; secretary—R. B. Little, Reliance Division, Eaton Manufacturing Company, Massillon, Ohio. All were elected for one-year terms.

(Continued on page 62)

BANTAM Rail-Roader®

The All-Purpose Handy Man ON Track AND OFF



Here's the first really all-around rig that can speed up your maintenance-of-way and yard work—and pass on real savings to you. The carrier mounted BANTAM Rail-Roader is the most versatile multi-purpose machine you can own because it can go anywhere to do more jobs.

BANTAM's integrated design job-matches both carrier and upper machinery for stepped-up work speeds on redecking, bridge restringing, cap changes and ribbon-rail operation. And because the BANTAM Rail-Roader is the only *true* on-off track crane-excavator, you can get the same high-speed work cycles for ditching, loading, materials-handling, etc.—saving the cost of many single-purpose rigs.

Look at all that's BANTAM-best

1. Big 8-ton capacity.
2. Rubber-tired mobility off track as well as high-speed on-

track performance through BANTAM's unique flanged dolly wheel system.

3. Remote control (optional) of all operations of carrier and upper from the operator's cab.
4. Full 360-degree vision.
5. Equal track speeds both forward and reverse—rapid highway travel.
6. Mechanically operated dolly wheels and outriggers that cut maintenance.
7. Exclusive BANTAM Rail Threader (patent pending)—threads in ribbon rail between existing tracks faster, smoother. BANTAM positions new rail to gauge in one operation!
8. Eleven quick-change attachments to let you do everything from pile-driving to stockpiling.

You can join the modern railroads that are realizing important savings with the BANTAM Rail-Roader. Ask for the name of your BANTAM Rail-Roader Distributor and new literature.

See the BANTAM Rail-Roader in action: Arrange a showing of new color films that demonstrate BANTAM's amazing job speed and versatility for B&B and track departments.

Read the facts: New, illustrated bulletin has full information, specifications and application photos. Write for Catalog RR-200.

RT-271



284 Park Street, Waverly, Iowa

World's largest producer of truck crane-excavators



BANTAM's rapid rail travel gets it to jobs faster. For off-track work, dolly wheels are fully retractable for parallel-free road travel.

Whatever your brush problem



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Roadside?



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WEEDONE can solve it!

With the right background—Chemical control of weeds and brush has developed along established lines of procedures and practices. Amchem initially pioneered the major advances in the field, has originated many of today's accepted procedures and products for efficient, economical weed and brush control. Your problems are in *experienced hands* when you hand them to Amchem!

With the right approach—Amchem's corps of weed and brush specialists are basically application specialists. Combining comprehensive theoretical and practical experience they are able to offer all industry a realistic approach to *any* weed or brush problem. These specialists have developed a variety of efficient weed and brush eradication programs over thousands of miles of line, roadside and right-of-way areas once choked and inoperable due to infestation.

With the right product—Amchem's tremendously diversified product line is your assurance that the right weed and brush killer is available and will be utilized for your specific problem. Weedone Brush Killers, for example, have been used in the field for years and proven eminently successful in eliminating weeds and brush wherever they are a problem. Why not bring your problems to Amchem?

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Please send me copies of your "Brush Control" brochure and full information on the uses of Weedone Brush Killers.

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Company _____
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WEEDONE BRUSH KILLERS

another chemical development of
Amchem Products, Inc.

(Formerly American Chemical Paint Co.)
St. Joseph, Mo. • AMBLER, PA. • Niles, Calif.

Association news (cont'd)

Directors—R. J. Whalen, True Temper Corporation, Cleveland, Ohio, and G. W. Christiansen, Racine Hydraulics & Machinery, Inc., Racine, Wis. Both were elected to serve three-year terms.

Serious consideration is being given to staging the next exhibition in the new \$34 million Exposition Center now under construction on Chicago's lake front.

Supply Trade News

ARMCO DRAINAGE & METAL PRODUCTS, INC.—Karel A. Smith, railroad sales manager, Calco division, Berkeley, Cal., has retired, effective December 31, after 45 years of continuous service.

BIRD & SON, INC.—H. L. Holderman, western representative of the Tie Pad division at Chicago, has retired, effective February 15. Mr. Holderman has represented the company in the sale of tie pads since 1951.

A. M. BYERS COMPANY—H. K. Siefers, Jr., has been appointed manager of the Engineering Service Department, according to an announcement by A. S. Chalfont, vice president—sales.

Two new distributors have been appointed to handle 4-D wrought iron pipe. They are: **Hajoca Corporation**, Trenton, N.J., and **Mountain States Pipe & Supply Co.**, Colorado Springs, Colo.

L. B. FOSTER COMPANY—The following have been appointed sales representatives at the locations shown: **William J. Bedford** at Los Angeles, Cal., and **Philip G. Hughes** and **Frank K. Gunther** at Pittsburgh, Pa. Mr. Gunther will specialize in rail and track accessories.

NORTHWESTERN MOTOR COMPANY—This company has been reorganized and **Jasper A. Berlin** has been elected president, as noted in the December 1959 issue, succeeding **F. W. Anderson**, retired. Other officers are **Sigurd A. Rishovd**, vice president, **Floyd O. Jarvar**, secretary-treasurer, and **Earle I. Welch**, sales manager and director of advertising. An announcement states that the company plans to continue the manufacture of railway maintenance equipment and to expand this activity through the development of new products. Mr. Rishovd, it said, will head up the railway maintenance of way division as chief engineer.

Two additional divisions have been



Jasper A. Berlin
Northwestern Motor



Sigurd A. Rishovd
Northwestern Motor

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UCTURES

**STRENGTH
DURABILITY
ECONOMY**

The Improved Gautier is the outstanding Rail Anchor on the market. Heavy, durable and easily applied, it affords long effective service and holds up under repeated applications without additional preparation.

Tough alloy construction with a sure grip and plenty of spring take-up, it can be used again and again on new or old rail.

Efficient, positive application by spike maul, sledge or by machine. It cannot be overdriven.



G A U T I E THE IMPROVED RAIL ANCHOR

MID-WEST FORGING & MANUFACTURING CO.

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Distributors: NORTH AMERICAN SSUPPLY CO., Cleveland, Ohio; WILLIAM ALLEN, Denver, Colo.; JOHN O'BRIEN, St. Paul, Minn.; W. T. Richards, San Francisco, Calif.; G. C. HUNT & CO., Atlanta, Ga.





ON THE JOB ... ON THE TOUGHEST JOBS

ARCTIC BOY

portable water coolers

... built to take a beating on construction jobs, in mines, on the farm, railroad crews, on service trucks ... wherever men work and the going is rough.

They keep drinking water cool and sanitary, keep worker efficiency up. And note these features:

- HOT DIPPED Galvanized or stainless steel insets
- Sparkleem plastic liner ... non toxic, prevents corrosion
- Large opening, easy to ice and clean
- Extra large insulation space

Send for free booklet
"Care and Use of Your
Cooler." Write Dept. R-1
SCHLUETER MFG. CO.



St. Louis, Mo.



HOWARD & GOULD TIE-BORING TWIST DRILLS



Improved HOWARD & GOULD drill bits have proved to be the best labor and money savers for field tie boring. Backage is minimized and less drills are used per job.

Four Standard recommended sizes are normally stocked for prompt delivery. Non-standards up to size 5/8" x 12" supplied on short order.

Bulletin on request.

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5306 W. Lawrence Ave., Chicago 30, Ill.

FOR TIE REMOVAL

NEL-SPOT PAINT HAMMER



SAVES TIME! CUTS COST!

Here is the tool you need for pre-marking ties to be replaced. A tap of the porous applicator leaves a bright, durable, weather resistant mark. Paint can clamp into adjustable head of hammer - permits marking from any angle. Complete with cap to prevent drying of applicator. Available in many colors.

TRY IT — ORDER TODAY OR WRITE:

THE NELSON COMPANY

Iron Mountain, Michigan (Box 349)
Montgomery, Alabama (Box 1892)

Supply trade news (cont'd)

established, the Gray Iron Foundry Custom Casting Division and the Industrial Tractor Division.

KWIK-MIX COMPANY—Western Contractors Supply Company, Melrose Park, Ill., has been appointed distributor for Ka-Mo products in northeastern Illinois and Lake and Porter counties in Indiana.

LE ROI DIVISION—Operation of this company's plants in West Allis, Wis., and Greenwich, Ohio, and certain functions of the Cleveland (Ohio) plant will be consolidated into one operating unit at Sidney, Ohio. The consolidation will take place in the spring.

NALCO CHEMICAL COMPANY—George W. Luvisi, manager of product development, Transportation division, has been promoted to assistant manager of the division, according to an announcement by R. G. Bollenberg, division manager.

UNIT RAIL ANCHOR CORPORATION—Harry Leard has been appointed special representative for this company, a division of Hubbard & Co. Prior to joining Unit Rail Anchor, Mr. Leard was engineer maintenance of way—assistant chief engineer of the Virginian.

Obituary

Ralph W. Payne, chairman of the board, Ralph W. Payne Company, Washington, D. C., died on March 6 at LaJolla, Cal.

CLASSIFIED ADVERTISEMENTS

**"FASTER
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RAIL**

& ALL TRACK EQUIPMENT
Nation's Largest Warehouse Stocks

L. B. FOSTER CO.

PITTSBURGH 30 • ATLANTA 8 • NEW YORK 7
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CIVIL ENGINEERS

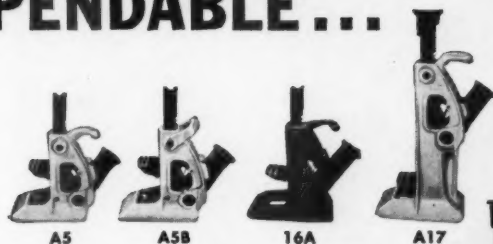
Wanted by rapidly expanding railroad track construction and maintenance contractor—must be under 35 with M. of W. experience, for openings in Boston, Mass., Pittsburgh, Pa., and Richmond, Va. Rapid advancement. Send resume and salary requirements to Box 29 RAILWAY TRACK & STRUCTURES, 30 Church Street, New York 7, N. Y.

WORLD'S MOST DEPENDABLE...

SIMPLEX

TRACK JACKS

New Model No. A8, eliminates need for both high and low lift jacks. 15-tons capacity, 15 $\frac{5}{8}$ " high with 7 $\frac{3}{4}$ " lift. The fulcrum center is 3" higher than 5" lift jacks. Has 2" min. toe-lift height, weighs only 34 lbs.

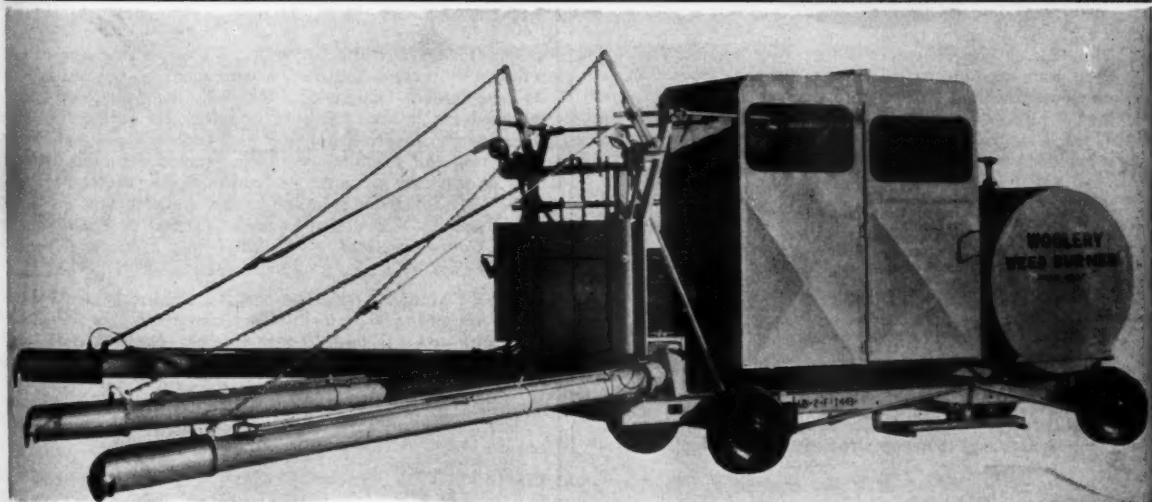


- Most complete line—14 models
- Available with malleable or aluminum alloy housings
- Large area (2 $\frac{1}{2}$ " x 3 $\frac{1}{4}$ ") lifting toe has non-slip grooves
- Lifting ranges from 5 inches to 19 inches
- Thumb guards and trips on both sides
- Lowest toe height—less digging or pounding to set jack

ALSO AVAILABLE—Rail Pullers and Expanders, Tie Spacers, Rail Dollies, Tie Removers and Replacers, Bridge Jacks, Jack Supports, Push and Pull Jacks, Steamboat Ratchets and a complete line of Hydraulic Jacks—Rams, Pumps (hand or powered), Pullers and Accessories.

TEMPLETON, KENLY & CO. • 2543 GARDNER RD. • BROADVIEW, ILLINOIS

NEW WOOLERY WB-2-F WEED BURNER IDEAL FOR MELTING SNOW IN SWITCHES



CONSTANT BLOWER SPEED maintains same heat intensity regardless of travel rate—an essential in yard work or snow-melting.

AUTOMATIC TRANSMISSION with torque converter. All steel

cab with safety glass. Two entirely separate brake systems. Outside burners can be raised, lowered, swing in or out from inside the cab . . . self-propelled by 4-cylinder, water-cooled engine. MANY OTHER NEW FEATURES.

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Yes, IGLOO Water Coolers will save you money. They keep more men on the job more of the time, pay off in employee relations and require no maintenance other than the rinsing any drinking container would require. There should be an IGLOO strategically located for every six to eight workers.

- **IGLOO** is PERMALINED to keep liquids pure
- **IGLOO** has an easy-to-clean round inside bottom
- **IGLOO** is stronger, lasts longer
- **IGLOO** has been proven in use—thousands of times

When you order water coolers specify IGLOO

IGLOO, world's No. 1 Water Cooler, is available in 2, 3, 5, 10 and 15 gallon sizes—23 models in all.



Helps from Manufacturers

The following compilation of literature—including pamphlets and data sheets—is offered free to railroad men by manufacturers to the railroad industry. To receive the desired information, write direct to the manufacturer.

ELECTRIC PLANTS. An eight-page folder is available entitled "Standby Electric Plants and Controls—a guide to their selection and installation." Designated Sweet's file folder 32C/ON, it outlines the steps to be considered in the selection of emergency electric generating plants. Suggestions are given for planning and designing installations and avoiding common errors. Also included is a list of items which should be evaluated to meet particular requirements of the installation, such as manual, automatic or instantaneous starting, type of fuel, air or water cooling, special heaters, radio shielding, plant exercisers and instrument panels. The catalog gives basic data on representative models of both gasoline and diesel-powered plants. (Write: D. W. Onan & Sons, Inc., Dept. RTS, 2515 University Ave., S.E., Minneapolis 14, Minn.)

RIPPERS. The use of rippers for reducing earthmoving costs is described in two 8-page booklets. One, Form 33557, is entitled "Caterpillar Rippers," and describes the features and operation of rear-mounted, hydraulically operated rippers for D9, D8, D6, and D4 tractors and No. 977 and No. 955 Traxcavators. The other booklet, Form 33793, is entitled "Ripping with Seismic Analysis." It tells the principle, method and operating technique of seismic analysis for determining where rippers can be used instead of blasting. A table is included which shows the rippability of various materials, such as limestone, sandstone, gneiss, caliche and conglomerate. (Write: Caterpillar Tractor Company, Dept. RTS, Peoria, Ill.)

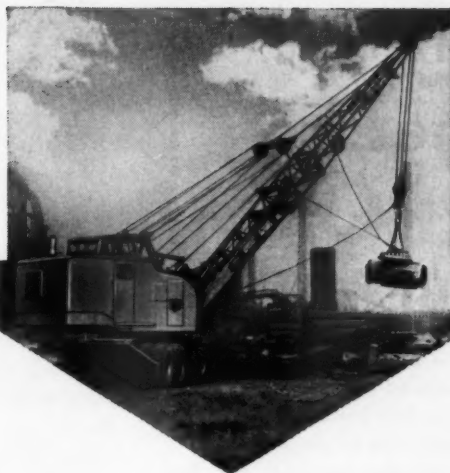
SAFETY EQUIPMENT. A new catalog is available which describes and illustrates the complete line of Willson safety equipment for the protection of personnel. Designated Catalog 59, it gives detailed descriptions of products for the protection of the worker's eyes, respiration, hearing and head. Included are illustrations of the individual components and parts of each product, ordering information and charts which recommend specific safety equipment for various types of hazards. The largest section of the catalog is devoted to eye protection, including spectacles, goggles, shields and welding helmets. (Write: Willson Products Division, Dept. RTS, Reading, Pa.)

CONSTRUCTION EQUIPMENT. The complete line of International Harvester construction equipment is depicted in a new 24-page folder. Designated CR-650-K, the four-color folder is designed for pocket reference and includes pictures and brief descriptions or specifications of the various types and kinds of equipment and machines available. Included in the folder are crawler tractors, scrapers, Payhaulers, Payscrapers, Paywagons, skid-shovels, sidebooms, bulldozer and grader blades, push plates and diesel and carbureted engines. (Write: International Harvester Company, Dept. RTS, 180 North Michigan Ave., Chicago 1)

CRANE-EXCAVATOR. The operating and mechanical features of the American 200 Series crawler Crane-Excavator are described and illustrated in a new 20-page catalog. Designated 720-CG-3, the catalog shows the machine doing a number of different types of jobs. Equipment available for use with the unit, including boom, clamshell, dragline, shovel, backhoe and magnet, is described. (Write: American Hoist & Derrick Co., Dept. RTS, St. Paul 1, Minn.)

FIRE-FIGHTING EQUIPMENT. The 28-page 1960 edition of the "Interior Fire Fighting Equipment Catalog" is now available. Designated Form S-62, the catalog contains up-to-date information, engineering data and specifications on Globe automatic sprinkler systems, C-O-Two high and low-pressure carbon dioxide systems, smoke-detection systems, dry-chemical systems, foam systems, fire hose and extinguisher cabinets, fire hose racks and reels, siamese connections, portable extinguishers and accessory equipment. (Write: The Fyr-Fyter Company, Customer Services Department, Dept. RTS, 221 Crane St., Dayton 1, Ohio)

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RAILWAY TRACK and STRUCTURES

APRIL, 1960 67

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WORK POWER PAYS!

When a BURRO goes to work — in the yard or on the line — it delivers fast, low cost performance. Equipped with bucket, magnet, hook, tongs or dragline bucket, a BURRO is ready and able to do the hundreds of odd jobs railroad work calls for. Fast travel speeds (up to 22 mph.) and heavy draw bar pull enable the BURRO to move itself and a work train or cars to the job in a hurry. Once on the job, a BURRO wastes no time getting the work done. BURRO's work power pays dividends every day it operates.

Write for illustrated BURRO Catalogs

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Represented in Canada by:

SYLVESTER STEEL PRODUCTS CO., LTD.
LINDSAY, ONTARIO



The Favorite Track Star of 35 Railroads

You can load this handy, easy-rolling hand car with up to 2000 lbs. of tools, ties, rails and supplies . . . and transport them quickly and safely from truck or bus to the job. Accepted as the standard railway tool and supply car by the leaders!

All tubular high-carbon steel construction for the trouble-free heavy-duty service. Car breaks conveniently in the center into two sections for easy handling and transportation. Each section can be used as a truck seat.

The deck is heavy mesh-expanded steel. Removable handle can be used at either end. Ball bearing cast steel wheels.

Platform Size 48" x 45"
Height Above Rail 8"
Weight 140 lbs. complete

Write for complete illustrated literature and prices. FREE complete catalog of entire NOLAN railway supply line.

NOLAN TRACK DOLLY ▶

The fast, safe, easy way to transport heavy rails, ties, supplies, tools, railers, etc. Tubular high-carbon steel construction. The deck is heavy mesh-expanded steel. Removable handle.

STANDARD DOLLY			
Length	Width	Rail	Weight
30 1/2 in.	15 1/2 in.	6 1/2 in.	88 lbs.
INSPECTOR'S DOLLY			
36 in.	14 in.	6 in.	60 lbs.

THE NOLAN COMPANY, 166 Pennsylvania St., Bowerston, Ohio



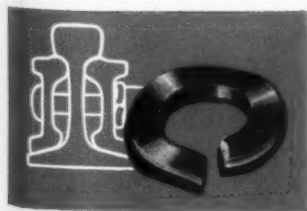
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IMPROVED HIPOWERS



One small, but vitally important track safety factor, is the powerful spring washer that maintains bolt tension. The reserve power designed into IMPROVED HIPOWER Spring Washers maintains *constant* bolt tension and absorbs the shocks of heavy traffic.

The NATIONAL LOCK WASHER COMPANY

Serving Industry Since 1886 NEWARK 5, NEW JERSEY, U. S. A.

Ripping out railroad crossings every three years meant a \$912 expense—per crossing—to this mid-Atlantic railroad. That included removal of the old amiesite and ballast—replacing both with fresh material—plus necessary resurfacing and provisions for drainage. But it didn't count the annoyance to motorists every time a busy crossing was torn up. You can end all that with Rubber Railroad Crossings, the G.T.M.—Goodyear Technical Man—promised them. So a trial installation went in nearly 4 years ago. At last report, maintenance costs on this heavily-trafficked grade crossing have come to only \$12 a year—for patching approaches—with no additional repair needs in sight. And the almost \$300 saving per year has sold this line additional Rubber Railroad Crossings.

Photo courtesy Western Maryland Railroad Co.



GOODYEAR INDUSTRIAL PRODUCTS  **-Specified**

Molded Rubber Railroad Crossing Pads



A Thick pad of solid, tough stock for excellent resistance to cutting, wear, weather and low temperatures.

B Heavy-gauge steel plate reinforcement follows contour of corrugated pad bottom.

C Tough integral flanges seal tightly against tracks when pad is sprung into place.



And this is a typical experience. More and more railroads and industrial firms—the country over—are discovering how much the G.T.M.'s Rubber Railroad Crossings can save them—especially since Goodyear crossing pads are now also available for installations located on slight curves.

For full information on these longer lasting, smoother, quieter, virtually maintenance-free crossings, write Goodyear, Industrial Products Division, St. Marys, Ohio, Los Angeles 54, California, or Akron 16, Ohio.

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